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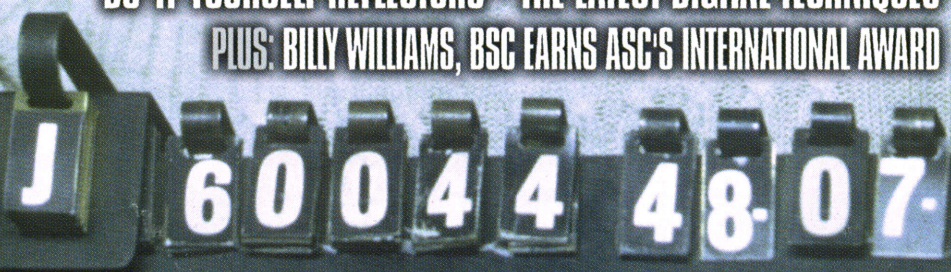
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American Cinematographer

MARCH 2001

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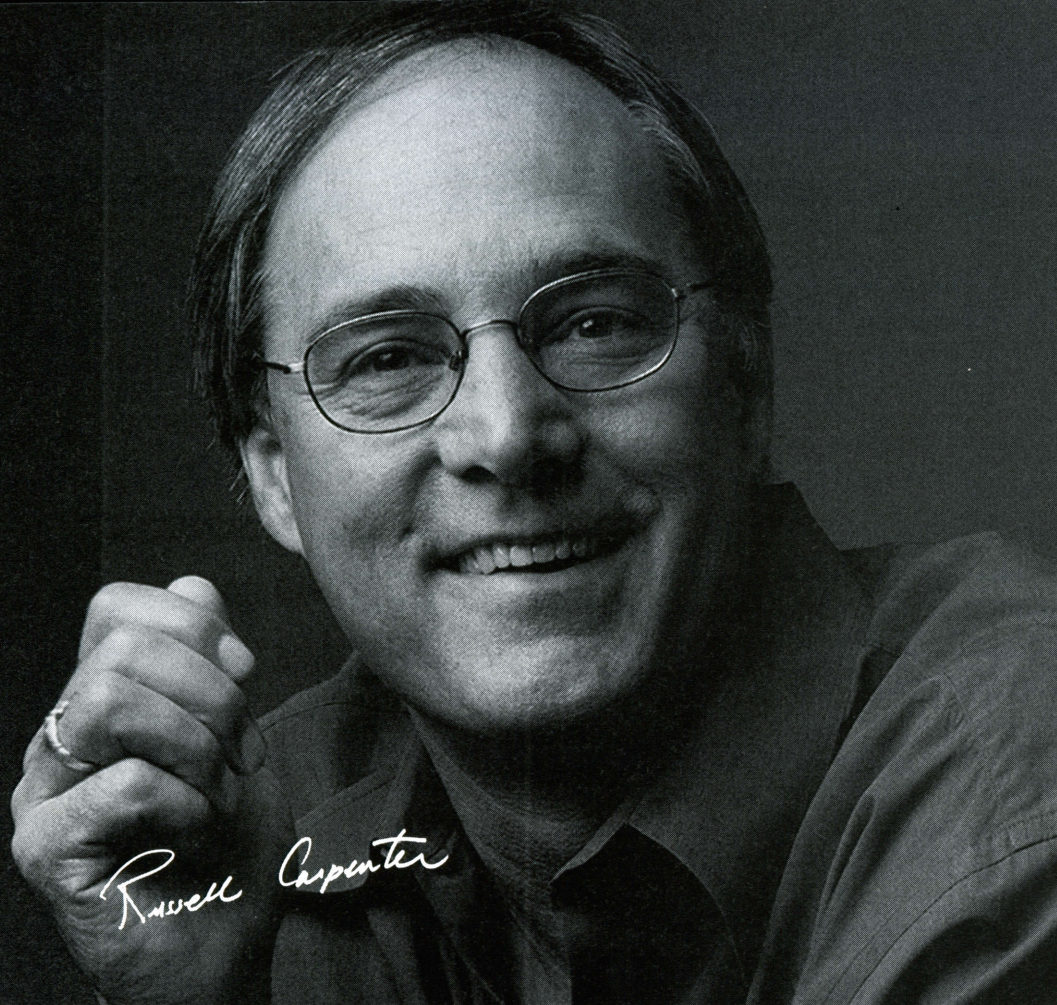
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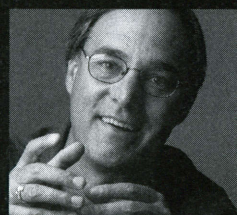
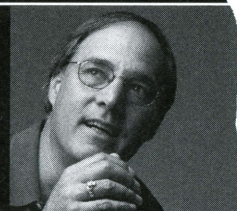


RUSSELL CARPENTER, ASC

ON FILM

"There's a scene in *Fanny and Alexander* where the young boy brings out a magic lantern in the middle of the night and puts on a show for his sisters. It's beautiful because of the reverence Alexander shows for the images he projects against the wall. The enchantment of the projected image is implicit in that scene. That's the way I feel when I'm working on a film. I believe that the art of motion pictures is related to the paintings that our ancestors left on the walls of caves. They are both illusions that represent our interpretations of reality and the expressions of our dreams. Filmmaking is our newest and most collaborative art form. The great filmmakers have an ability to shatter reality and put it back together in a totally different way. You can create your own reality and make your own rules. Film is such an engrossing medium that just watching it is a creative act. I feel really blessed to play a role."

Russell Carpenter, ASC earned an Oscar, in 1997 for his work on *Titanic*. His narrative credits include *Charlie's Angels*, *The Indian in the Cupboard*, *True Lies*, *Money Talks* and *The Negotiator*.



Features

American Cinematographer

The International Journal of Film & Digital Production Techniques



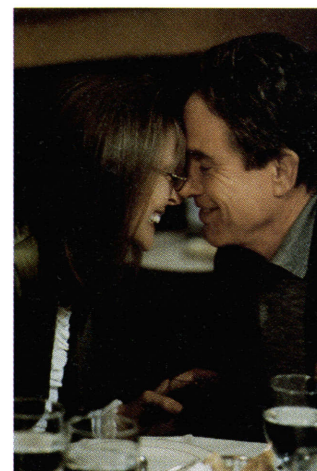
On Our Cover: Defiant drug dealer George Jung (Johnny Depp) poses for a mug shot in *Blow*, directed by Ted Demme and shot by Ellen Kuras, ASC (photo by L. Sebastian, courtesy of New Line Cinema).

Contributing Writers:
Stephanie Argy
Bob Fisher
John Gainsborough
David Wiener
Rochelle Winters

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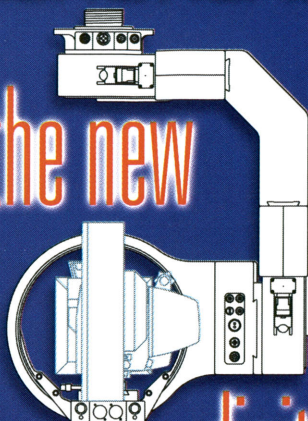
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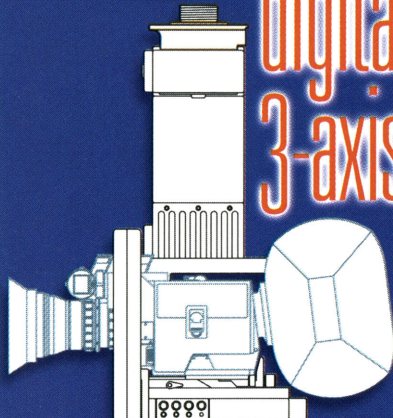
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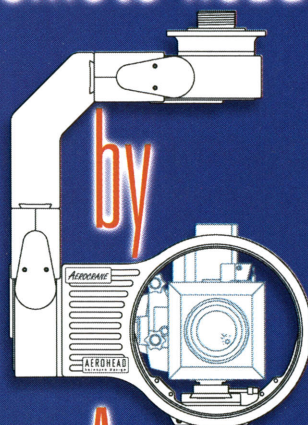
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March 2001 Vol. 82, No. 3
The International Journal of Film & Digital Production Techniques • Since 1920

American Cinematographer

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American Cinematographer (ISSN 0002-7928) established 1920 in 82nd year of publication is published monthly in Hollywood by ASC Holding Corp., 1782 N. Orange Dr., Hollywood, CA 90028, U.S.A., (800) 448-0145, (323) 969-4333, Fax (323) 876-4973, direct line for subscription inquiries (323) 969-4344. Subscriptions: U.S. \$40; Canada/Mexico \$60; all other foreign countries \$75 a year (remit international Money Order or other exchange payable in U.S. \$). Advertising: Rate card upon request from Hollywood office. Article Reprints: Request for 100 or more high-quality article reprints should be made to Reprint Management Services at (717) 560-2001. Copyright 2000 ASC Holding Corp. (All rights reserved.) Periodicals postage paid at Los Angeles, CA and at additional mailing offices. Printed in the USA. POSTMASTER: Send address change to *American Cinematographer*, P.O. Box 2230, Hollywood, CA 90078.

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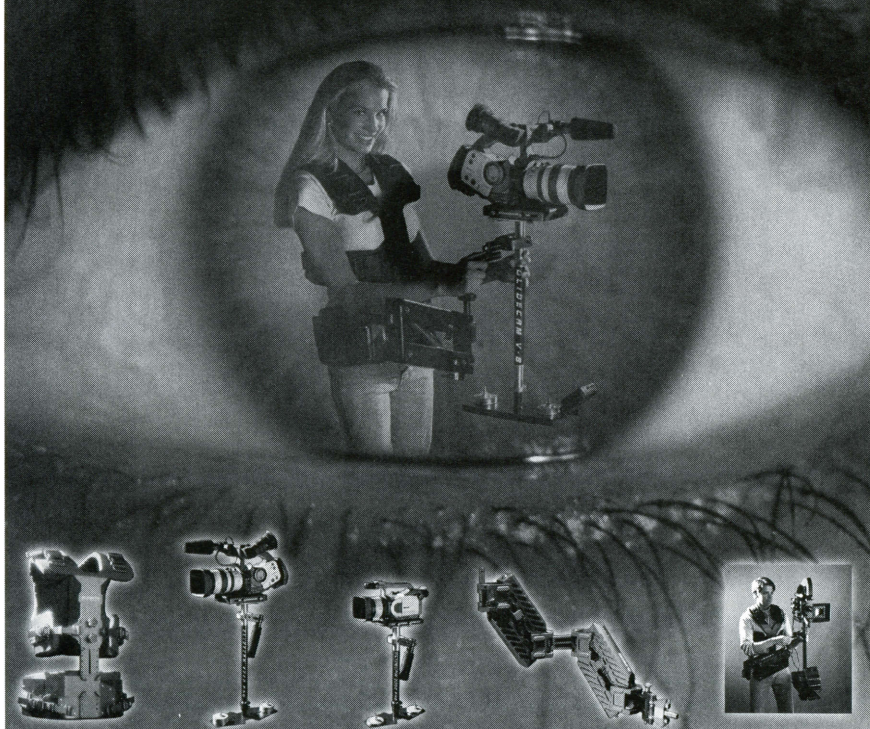


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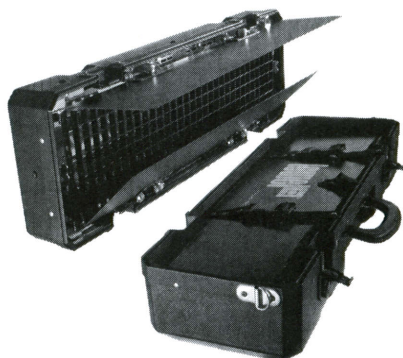
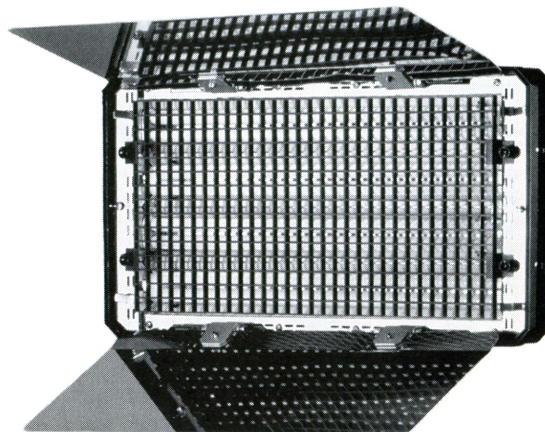
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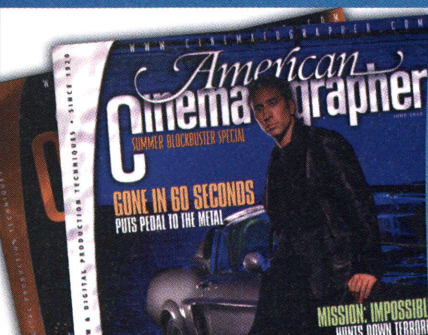
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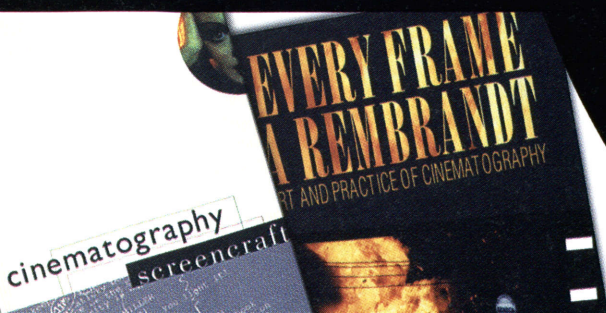
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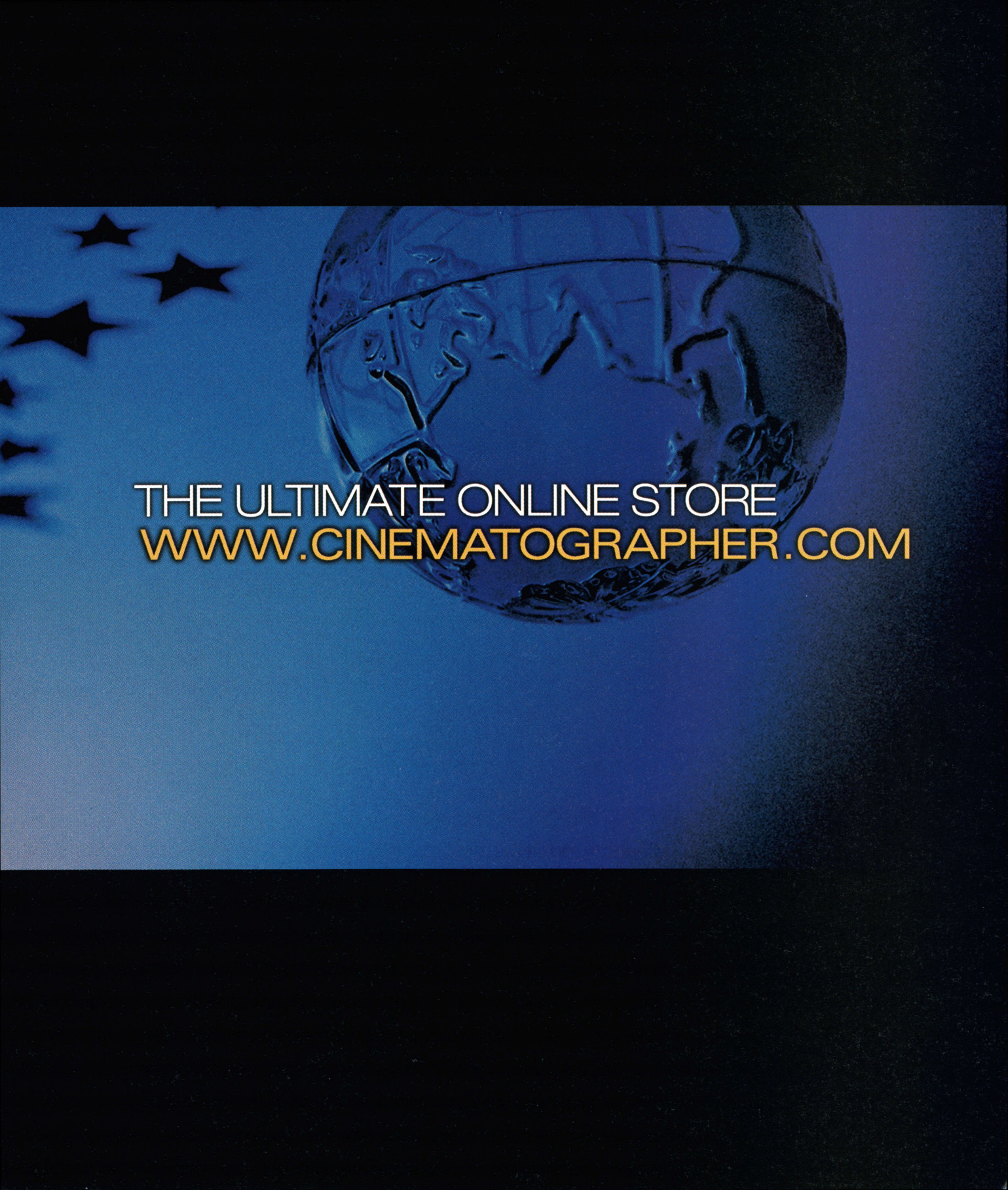
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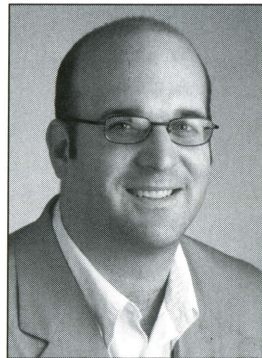
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Editor's Note



The cornerstone of the cinematographer's art is lighting, and this issue of *AC* goes into extra depth on this complex topic. In addition to our usual features and departments, we've included a number of lighting-specific stories featuring detailed diagrams of key scenes from various films; we hope these schematics will prove informative for both our professional and student readers.

This month's cover story on Ted Demme's fast-moving drama *Blow* ("Life in the Fast Lane," page 36) illustrates the adventurous photographic strategies employed by cinematographer Ellen Kuras, ASC. In capturing the rollercoaster rise and fall of a flamboyant drug dealer, Kuras was asked to recreate the ambience of five different decades, from the 1950s to the '90s. Her artful response to the challenge — which combines several different film stocks, a variety of lighting styles, and some retro camera techniques — lends the film's true story a wry and entertaining edge.

Our in-depth focus on lighting continues with a breakdown of a spectacular sequence from *Swordfish*, an upcoming summer thriller directed by Dominic Sena and shot by Paul Cameron. Seeking a new way to employ a trendy technique, the duo used an array of still cameras to capture every detail of a devastating explosion ("The Frozen Moment," page 48).

Cinematographer Tony Imi, BSC took a more classical approach to the World War II drama *Aimée and Jaguar*, which recounts a risky lesbian romance amid the final, decadent days of the Nazi regime. Our breakdown of a pivotal scene ("Women in Love," page 58) analyzes Imi's elegant, atmospheric approach.

On *Town and Country*, William A. Fraker, ASC found himself working with several of Hollywood's biggest stars. By employing a glamorous lighting style for their first scene together ("An Enlightening Introduction," page 66), the veteran cameraman managed to flatter the actors while staying faithful to the script's comedic slant.

Two other articles on lighting explore both the low and high ends of the technical spectrum. In "Using Reflectors: A Shortcut to Stylish Lighting" (page 72), Stephen Burum, ASC offers some valuable and economical advice to cinematographers working within a limited budget, while "Painting With (Virtual) Light" (page 80) explores some of the latest techniques being employed by digital artists.

Last but not least, this issue of *AC* presents an admiring salute to cinematographer Billy Williams, BSC ("Impeccable British Instincts," page 90), this year's recipient of the ASC International Award.

Sincerely,

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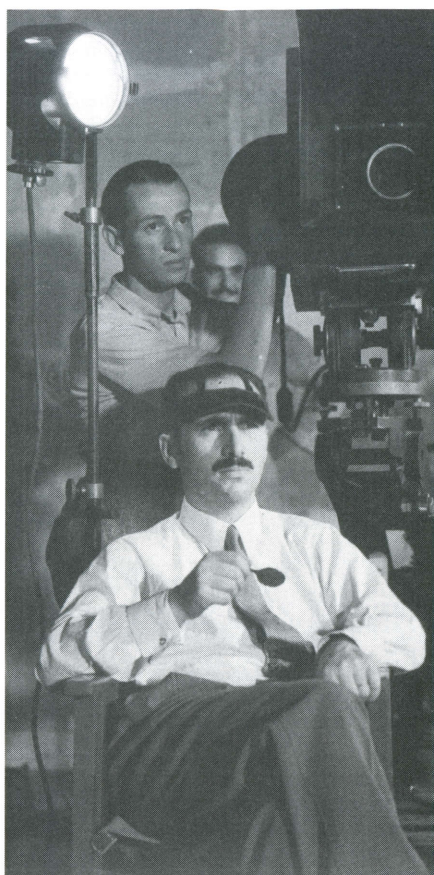
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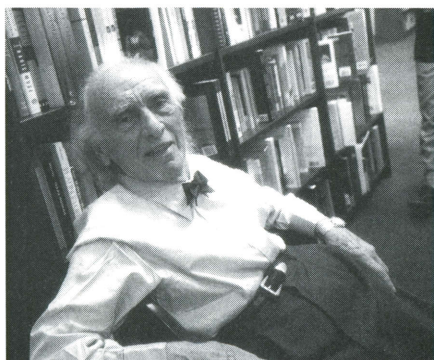
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The Post Process

LA Facilities Ramp Up for Digital Cinema

by Debra Kaufman

As tools for the acquisition and exhibition of digital films improve, an increasing number of Los Angeles-area postproduction facilities are beginning to offer an array of digital-cinema services. Late last year, two prominent L.A.-area post facilities that have been keeping a close eye on developments in the field made significant entries into the market.

"We're seeing the emergence of digital cinema," declares Mark Girard, chief technology officer at High Technology Video (HTV). "With projector technologies improving, it's coming to fruition. Now we can give filmmakers the same types of post tools that have been available to them for years with film."

That's exactly what HTV has done. A facility that's been around since 1995 and has made a name for itself in high-end standards conversions and standard-definition telecine transfers, HTV made a significant commitment to digital cinema when it opened a digital-cinema suite last November. Accessed by both its Philips Spirit and Cintel C-Reality, HTV's suite is a tapeless color-correction environment designed to give the colorist maximum control for E-cinema transfers.

The new suite got a prominent workout immediately upon opening when HTV completed the E-Cinema transfer for the Miramax feature *Bounce*. Utilizing the Philips Spirit, the film was digitized uncompressed onto an SGI Origin server, then color-corrected and trimmed in the suite, which features a Texas Instruments Cinema Grade DLP projector and big screen. After dirt and scratch removal was performed, *Bounce*

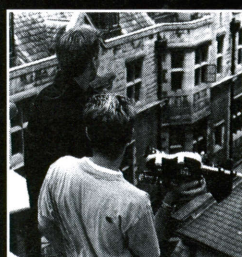
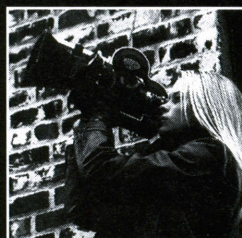
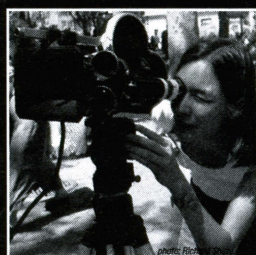
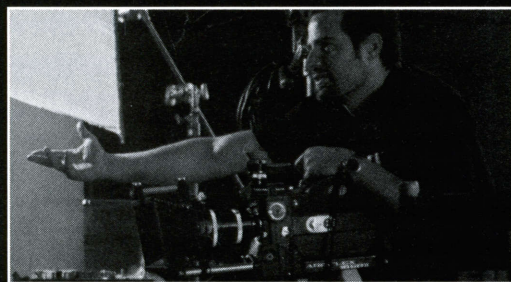
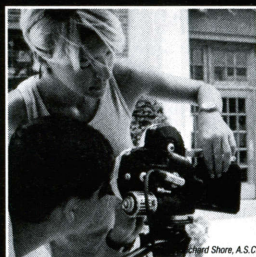
was next laid onto a QuBit storage system at 24p. Via the Boeing Cinema Connexion, the film was transmitted to New York's Times Square, where it was exhibited electronically in the AMC Empire Theater.

In addition to its big-screen projection system utilizing the state-of-the-art DLP projector, HTV's digital cinema suite features a unique piece of equipment that the facility helped to refine. The CineDeck, from MTI, is a system that manipulates film or video-based material in an uncompressed high-def or standard-def server environment, which is combined at HTV with an advanced multi-server storage area network. Data is stored in the network and can be accessed and controlled from various workstations simultaneously, and the final product can be rendered out to different formats at once. CineDeck performs color-correction, digital restoration, and grain and noise reduction, all in a parallel manner, and performs aspect-ratio conversions, up/down conversions, vector motion-control, 3:2 cadence conversions and color space conversions. HTV and MTI are currently working on an open architecture footprint to reduce dependency on fixed-resolution equipment.

"CineDeck goes far beyond electronic cinema," explains Girard. "In video post, you've been tied to resolution-dependent hardware. Every time you turn around, manufacturers come out with another tape format that has to be supported. The problem is that if you're not doing any work in one particular format, you have hundreds of thousands of dollars of equipment just

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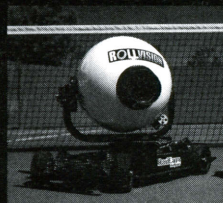
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"Why not have a centralized model with a centralized computer that's the big piece, and then plug in applications to it?" he continues. "That way, you can always utilize your hardware to its maximum capacity, and the computer will cost less than the combined costs of all the dedicated hardware."

Girard reports that HTV is currently talking with studios and production companies about creating theatrical trailers electronically and then recording them out to film, a solution that will give studios electronic tools in video post for a film finish.

In 1994, Sunset Digital Studios founder/CEO Ron Burdett and his telecine team met with Texas Instruments' Larry Hornbeck, the inventor of Micromirror technology, to discuss the implications of the FCC's mandate for high-def and digital television. Those discussions came to fruition last December, when Sunset Digital Studios in Glendale debuted its D-Cinema Stage. The suite is a working telecine and tape-to-tape color-grading suite, fully utilized in the post facility's daily work. Sunset's two Cintel C-Realities and DaVinci 2K feed into the room and, depending on the project, Sunset's operators can either use the HD monitors or the big screen, fed by Texas Instruments' DLP-Cinema projector from Christie Digital Systems.

The Sunset D-Cinema Stage offers a unique feature: it is certified for THX sound, making it the only digital-cinema suite in town with such certification, says president Godfrey Pye. As a result, the stage is multi-functional, allowing Sunset to utilize it for audio services, including voice-over recording to picture, as well as other kinds of sound recording and mixing.

Pye reports that Sunset created its digital-cinema suite to meet the needs of interested clientele, particularly the major film studios, who are increasing digital and electronic cinema distribution. Sunset also plans to offer digital-cinema mastering, compression mastering and quality-control services for digitally released movies and other media. ■

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DVD Playback

by Chris Pizzello and Rachael K. Bosley

The Bridge on the River Kwai (1957)

Limited Edition

2.55:1 (anamorphic), Dolby Digital 5.1 and Surround 2.0

Columbia TriStar Home Video, \$39.95

Alfred Hitchcock was fond of spotting what he termed the "MacGuffin" in movies: the element of a story that seems to exist solely to advance the plot or explore character. By that definition, the bridge in David Lean's World War II classic is the biggest, most elaborate "MacGuffin" in movie history. The massive structure — built over eight months by a crew of hundreds on the island of Ceylon — is not in itself important. Rather, its construction is a prism through which viewers can study the real subject of the film: the intense psychological battle of wills between Japanese Col. Saito (Sessue Hayakawa), head of a British POW camp, and the enslaved Col. Nicholson (Alec Guinness).

Photographed by Lean's frequent collaborator Jack Hildyard, BSC, *The Bridge on the River Kwai* uses every inch of the CinemaScope frame — preserved here in its original 2.55:1 glory — to capture the director's precise, symmetrical compositions. The film's age is barely apparent on the sharp, saturated and almost grainless DVD transfer, in which sun-parched prison-camp scenes balance nicely with the lush but lethal jungle through which reluctant American Maj. Shears (William Holden) advances with British commandos, on a mission to destroy the bridge.

Included in a separate disc of generous supplementary material is a new, well-researched documentary on the film that features interviews with many surviving crewmembers. One of

the interesting revelations is that Lean could take on Saito-like characteristics in order to bring out the best in his cast, at one point humiliating Hayakawa in front of everyone to get the proper level of emotion for a scene. The documentary also reveals that the filmmakers weren't sure of the motivation behind Nicholson's dramatic detonation of the bridge at the film's finale, preferring instead to give the audience something to chew on as they left theaters. The production's most nerve-wracking moment — the no-retakes, five-camera filming of the destruction of the bridge — is also covered in detail.

Also featured are a shorter black-and-white period documentary featuring rare footage of the principals on location in Sri Lanka, and a short tribute to the film by "man's man" filmmaker John Milius, probably its biggest fan. Milius's enthusiasm whets the viewer's appetite to view the film again, and he offers a sound explanation for Nicholson's much-debated motives at the end of the film.

— Chris Pizzello

The Conversation (1974)

1.85:1 (16 x 9 enhanced),

Dolby Digital 5.1

Paramount Home Video, \$29.99

Although Francis Ford Coppola's legacy as a filmmaker will be his works of outsized ambition and epic sweep — exemplified by the *Godfather* films and *Apocalypse Now* — the director originally envisioned a career of small, personal art films. Such pictures seem to be closest to his heart, as he reveals in a commentary on this new disc that *The Conversation* and *Rumble Fish* remain his favorites of his own films.

One of the pivotal Seventies films, *The Conversation* is Coppola's

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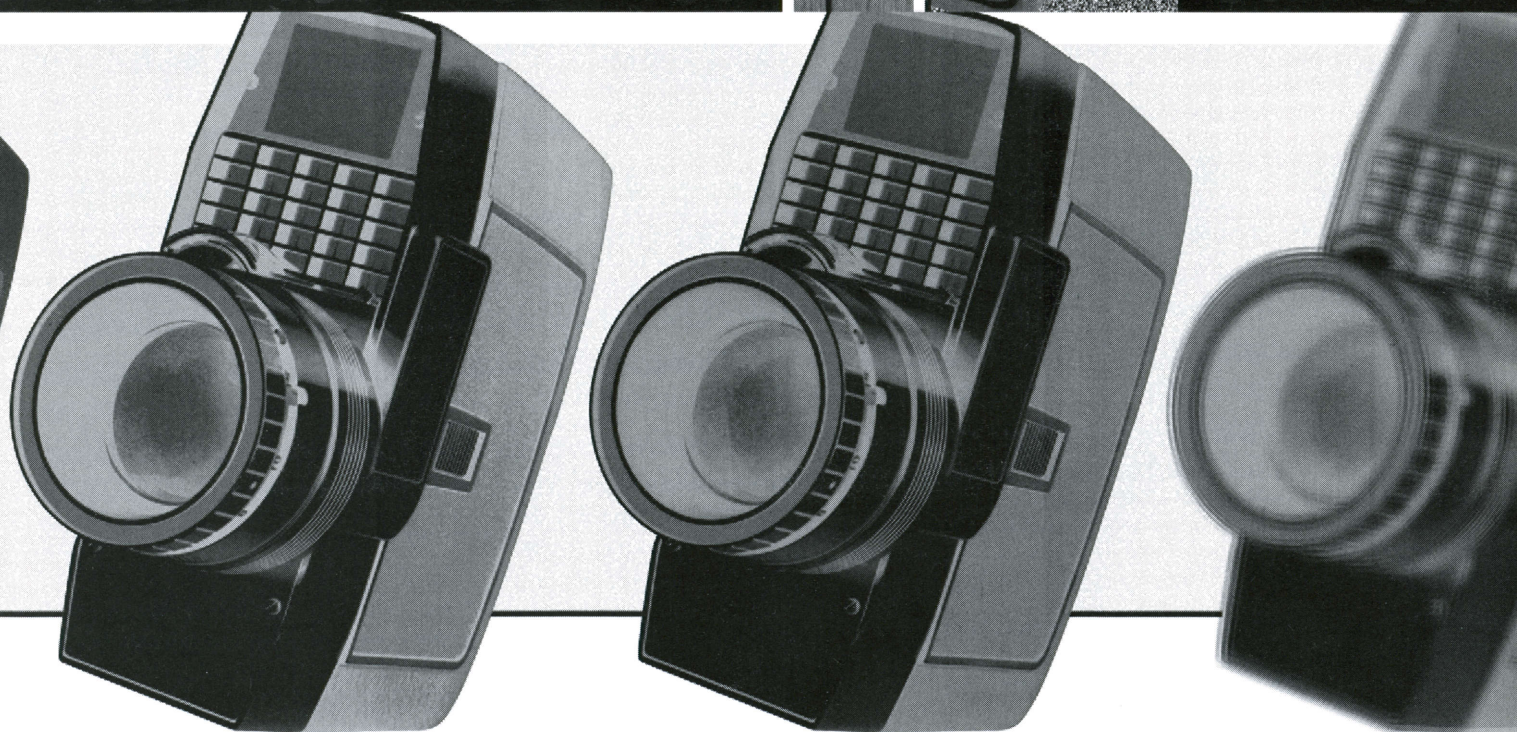
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haunting, arty examination of the concept of personal responsibility. Borrowing stylistic and thematic elements from Michelangelo Antonioni's famously enigmatic *Blow-Up*, the film burrows into the disillusioned psyche of wiretapping expert Harry Caul (Gene Hackman), who believes he has uncovered a murder plot on his latest assignment. The discovery forces Caul to question his lifelong ethos of divorcing himself from the moral consequences of his vocation.

The film's original cinematographer, Haskell Wexler, ASC, left the film when his more romantic view of the story couldn't be reconciled with Coppola's more pitiless take. Bill Butler, ASC took over, and it's a credit to his range that he followed this sober, moody film by shooting *Jaws*. As *The Conversation* progresses, Butler's camera subtly takes on the chilling, slowly revolving quality of a surveillance camera. The cinematographer's images have been well-preserved by an excellent, crisp DVD transfer, which will be refreshing for those who have grown accustomed to tolerating grainy, washed-out prints of *The Conversation* in revival theaters.

Generally avoiding set stories or tiresome platitudes about the greatness of his collaborators, Coppola instead uses his commentary to explain very articulately the reasons for the choices he made as writer and director. Particularly interesting is his explanation of the famous "cheat" that some viewers count as a serious flaw — a slightly different line reading of "He'd kill us if he got the chance" at the film's conclusion. The director acknowledges misgivings, but maintains that test audiences didn't fully grasp the line's implication in its original, unaltered reading. Also included is a commentary by the film's co-editor and sound re-recordingist Walter Murch, whose innovative sound work on the film (along with Art Rochester) was Oscar-nominated, and a behind-the-scenes documentary featuring some exceptionally rare footage of Coppola and Hackman putting their heads together to create one of the most haunting characterizations of the decade.

— Chris Pizzello

The X-Files: The Complete First Season and The Complete Second Season (1993-1995)

Collector's Editions

1.33:1, Dolby Digital 2.0 Surround
20th Century Fox, \$149.98 each

Releasing a "collector's edition" of *The X-Files* that does not include a focus on its cinematography is like issuing a similar treatment of *M*A*S*H* that largely ignores the contributions of its writers; unfortunately, this is the path Fox has taken with its inaugural boxed sets of *The X-Files*' first two seasons. Since its debut in 1993, the hit series about two FBI agents' investigations of the paranormal has earned a record eight ASC Award nominations, winning two, but the only real testament to that achievement on these seven-disc sets lies in the images themselves.

It is, in fact, hard to conceive of a less imaginative treatment of this very imaginative series than the approach Fox has taken, which excludes the cinematographer's perspective altogether. Both boxed sets include all of the episodes in broadcast order; a short documentary summarizing the season (featuring comments by *The X-Files* creator Chris Carter; a host of producers, directors and writers; and a few supporting actors); Carter's brief discussion of his favorite episodes; the "Behind the Truth" spots created for Fox subsidiary FX; promotional TV spots; a DVD-ROM game (for PC only); and a few deleted scenes and visual-effects clips.

Several on the show's creative team acknowledge in their comments that no one knew what to make of *The X-Files* at first; in fact, Carter had to pitch it twice. Its police-procedural format belies its deeply melodramatic core, and the show is defined by tensions: between logic and faith, fact and intuition, the Gothic and the romantic. What has simultaneously underscored and unified these conflicts over the past eight years is the show's distinctive cinematography. In a 1994 interview with *AC*, Thomas Del Ruth, ASC, who shot the pilot episode, cogently described *The X-*

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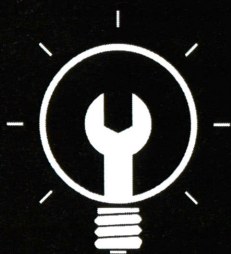
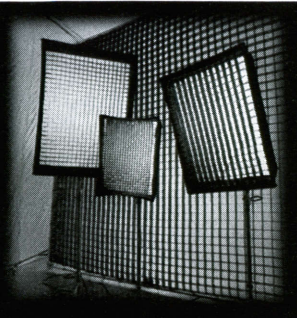


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Files as a "clinical fantasy," noting that "the main characters [Mulder and Scully] are rather skeptical about the adventures they're about to go on ... so the charter with cinematography was to stylize the image, but to the point where it was still acceptable reality. It was very important that I didn't make [the images] overly theatrical, but ... romantic enough so that the unknown is appealing."

Echoing the shadowy paranoia of films such as *The Parallax View* and *The Silence of the Lambs*, *The X-Files'* look was refined by director of photography John Bartley, ASC, CSC during its first three seasons. (Bartley earned three ASC Award nominations, and Del Ruth was also nominated for the pilot.) In an interview on the Season One disc, Carter does credit Bartley with developing "a nice, dark, subtle look ... [that] helps to scare you by hiding things in shadow." Occasional supporting actor Dean Haglund (who plays Langly of the Lone Gunmen) observes: "You knew they were doing something different ... when you'd look [at the set] and see that it was pitch-black, and you'd think, 'They're not even lit yet.' Then they'd say, 'We're ready to go.'" Frequent director Rob Bowman sheds light on one of the show's signature images by revealing that a key discovery during the second season was a \$7,500 Xenon flashlight, which offered "a tremendously powerful tunnel of light." By equipping lead actors David Duchovny and Gillian Anderson with the flashlights and sending them into an otherwise unlit space, "you could have blackness on the edges of a scene, and in the center [have] two surgical spotlights."

Aside from these brief observations, the visual achievements of *The X-Files* remain unexplored on these collections. Fox reportedly plans to release subsequent seasons of the show at a rate of one boxed set per year; perhaps future sets will give the cinematographers of this landmark series their collective due.

— Rachael K. Bosley

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Cinematography I: An Introduction, DELAND NUSE, cinematographer and director whose movies include *The Chilling* and the documentary *The Other Bridge*

Cinematography III: Painting with Light, DELAND NUSE, see credits above

Cinematography for Directors, LINDA J. BROWN, director of photography; recipient, Kodak's Vision Award and a Los Angeles-area Emmy Award; recent credits include *The Poet's Wife*, *Remaking Silverman*, and Showtime's *Women* series

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Production Slate

The drama *The Claim* sets Thomas Hardy's novel *The Mayor of Casterbridge* in California during the Gold Rush era. Near right: Dalglish (Wes Bentley), a surveyor who wants to expand the Central Pacific Railroad into the town of Kingdom Come, shares a dance with a fellow visitor (Milla Jovovich). Below: In a spectacular sequence, the town's buildings burn to the ground.



Mining for Drama by Jean Oppenheimer

As a boy growing up in Germany, cinematographer Alwin Kuchler devoured the books of Jack London and dreamed of one day spending time in the

unforgiving wilderness made famous by the hard-living American writer. He got his wish when English director Michael Winterbottom (*Welcome to Sarajevo*, *Jude*, *Wonderland*) tapped him to shoot *The Claim*, a dramatic story of greed, love and redemption set in California just

after the Gold Rush. The film was shot in the Canadian Rockies — in the middle of winter. Winds of 50 mph and temperatures around -20 degrees were not uncommon.

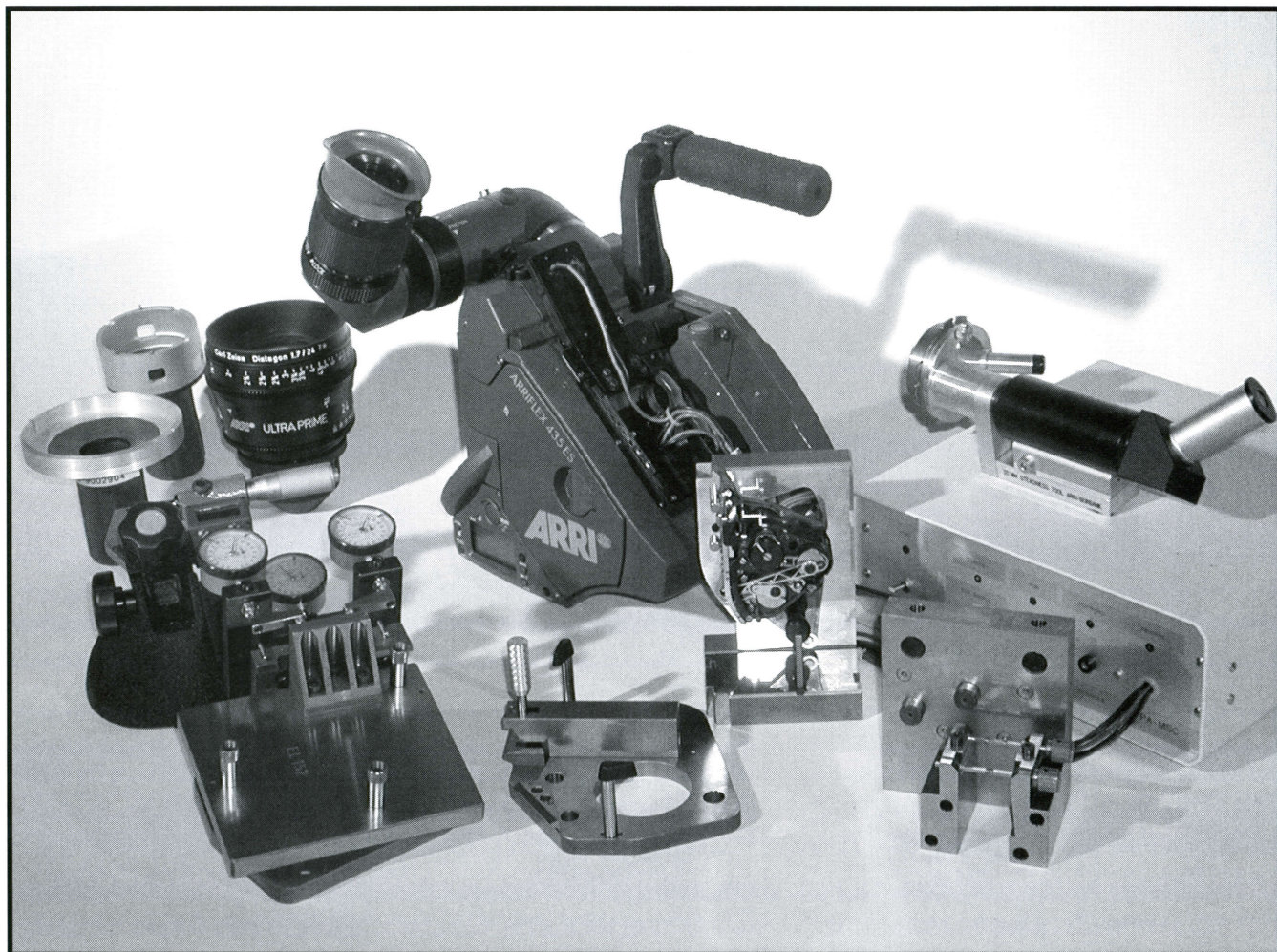
"It was so beautiful that at times I didn't even notice the cold," confesses Kuchler, speaking by phone from Britain, where he has lived for the past 11 years. While the cinematographer was oblivious to the harsh conditions, the camera equipment certainly wasn't. "We started off with a Moviecam Compact and a Moviecam SL, but the lightweight SL couldn't keep up with the minus temperatures, so we stopped using it and brought in a second Compact." With a laugh, he adds, "Of course, when you are working in snow up to your hips, there's never a straightforward camera setup!"

A still photographer in Germany before entering London's famed National Film and Television School, Kuchler has worked extensively in British television, and he garnered high praise for his work on director Lynn Ramsey's feature debut *Ratcatcher* [see *Global Village*, *AC* April '00]. His shorts and documentaries have won numerous awards, including the Scottish BAFTA and the Jury Prize at Cannes for the 20-minute short *The Gas Man*. Other credits include the feature *Welcome to the Terrordome* and the Academy Award-winning documentary *One Day in September*.

Transplanting Thomas Hardy's novel *The Mayor of Casterbridge* to the American West, *The Claim* centers on a successful and respected mine owner named Daniel Dillon (Peter Mullan), whose past sins catch up with him when two women enter Kingdom Come, the mining town he rules as a benevolent

Photos by Chris Large and Peter Mountain, courtesy of MGM.

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A team of horses and men transports an unusual house that *Kingdom Come's* leader, Dillon (Peter Mullan), has bought for his bride. A bulldozer hidden inside the house provided the real horsepower in the scene.

dictator. Winterbottom didn't want the film to be just another pretty period picture; he sought realism, and he also wanted to have the ability to move fast and to grab shots spontaneously. "The approach was meant to be closer to that of a documentary, rather than planning everything out," explains Kuchler. "[Our approach] was partially due to the experience Michael had had with his last film, *Wonderland*, where he had the freedom to change his plans, and to just go anywhere and shoot."

Old black-and-white photographs from the Gold Rush era served as the production team's primary visual reference. The photos had a certain graininess and rawness that the filmmakers sought to duplicate. Day exteriors were shot on Kodak Vision 200T 5274 and then force-developed between a half-stop and a stop to increase the contrast; the film

was shot in 2.35:1 Super 35 aspect ratio and then blown up for anamorphic release prints.

"I was taking light readings at around 320 ASA, which necessitated using ND filters and an 85 combined," explains Kuchler, who prefers the shallow depth of field afforded by a lower f-stop. "I like to concentrate on the faces rather than the landscape. Even T5.6 gives too much depth of field." Whenever possible, he would shoot at T2 or even T1.4, and if it wasn't snowing, he would close down to T2.8 or T4.

Most of the film's day interiors were shot on Vision 500T 5279, while a few night exteriors (including a scene of fireworks and a sequence in which Dillon burns down the town he has built) were photographed with higher-speed Vision 800T 5289. "There were times, particularly at dusk, when my light meter told us

that we shouldn't shoot anymore, but we still did," Kuchler recalls. In one such scene, actresses Sarah Polley and Milla Jovovich exit a hotel and head for a saloon; as they do, several of the town's men place wooden planks on the snow for them to walk across. "I really like that shot," muses the cameraman. "Because everything around us was white, we were able to shoot much later than we would have been able to anywhere else. That scene was [illuminated with] just the natural light."

To better achieve the harsh, desaturated look of the period photographs, the filmmakers decided to employ the bi-pack printing technique of optically combining a black-and-white and color intermediate during the color-timing process. "It's an old technique," Kuchler acknowledges. "[Russian director Andrei] Tarkovsky used it on a lot on

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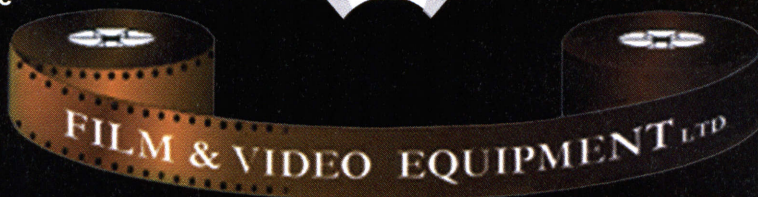


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Cinematographer Alwin Kuchler lines up a shot on location in the Canadian Rockies.

his films. You shoot in color and then strike a black-and-white internegative off the color negative, and then you optically combine the two. During the process when you expose them together, you can decide what percentage of each you want to use: 80 percent of the color and 20 percent of the black-and-white, 70 percent color and 30 black-and-white, and so forth."

This post technique also helped to camouflage continuity problems that arose from the constantly changing weather. Kananaskis, the area of Canada where the film was shot, is renowned for the speed at which blind-

ing snowstorms give way to brilliant blue skies. At an altitude of 7,500 feet in an unpolluted, unpopulated area, the difference in color temperature between sun and clouds is extreme.

Fortunately, Kuchler's all-Canadian crew was experienced in dealing with the notoriously shifting weather patterns. Heading the lighting team was gaffer Robin Loewen, a Calgary native and an accomplished mountaineer who recently made the transition from gaffer to cameraman; his credits as a gaffer include *Speaking of Sex* with Ralph Bode, ASC and *Snow Day* with Robbie Greenberg, ASC. Notes Loewen, "The

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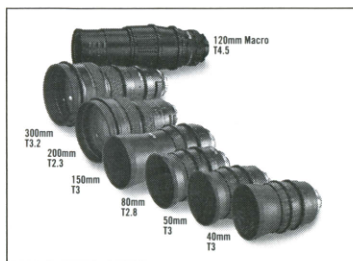
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Director Michael Winterbottom eyes an upcoming scene as Kuchler stands by.

sky is one thing, but what really becomes an issue is that you lose all shape in the snow. Everything is white and there is nothing to give it shadow. There really isn't anything you can do except to make sure that you expose to compensate for the snow."

Whenever time permitted, Loewen and his team would create negative fill by throwing black on the ground or flagging underneath the camera lens. In most instances, however, Winterbottom's semi-documentary approach didn't allow the prep time that a more traditional approach might have had. The emphasis always was on realism and spontaneity.

The town of Kingdom Come was built expressly for *The Claim*, although some interiors were shot elsewhere. The inside of the saloon was an existing set that production designer Mark Tildesley redesigned. The filmmakers wanted to rely as much as possible on source lighting: oil lamps and candlelight. Kuchler conducted tests, placing an oil lamp on a saloon table and then gathering people around it to see how the shot would photograph without fill light. The fall-off was extreme. "When someone was two feet from the table, we'd get an exposure. But if they were three feet away, we just got black."

Tildesley came up with a clever idea that didn't completely eliminate the need for fill light, but greatly reduced it: he lowered the ceiling in certain areas of

the saloon and covered it with thinly pressed metal sheets that acted as reflective material. Embossed with decorative patterns, the silver sheets appear to be part of the saloon's design. The oil lamps and candle chandeliers added a golden glow. "Even though the light output from the lamps was very low, the silver helped us get the highlights back in," notes Kuchler. Faces ended up between 1 1/2 and 2 stops underexposed.

The middle section of the saloon had a higher ceiling that aided in hiding additional lights — mainly PH-212 Photoflood bulbs. "I don't like to use 213s around actors, because they can get so hot that they explode," remarks Loewen, who put safety cages around the lights and then had his crew build up gel sleeves to fit over the cages. These protective cages also acted as small softboxes, he notes. "We gelled the Photofloods with 1/4 CTO and used light gridcloth under them." All of the softboxes were controlled with a dimmer and were hung from the ceiling on pulleys.

"We also lit a number of scenes with China balls or hanging fixtures to provide an overall ambience," Loewen continues. "If we had corners or people that needed to be lit, we put a screw in the wall, hung up one of the Photofloods with a 1/2 CTO gel on the sleeve and just dimmed it down." In this manner, scattered Photoflood bulbs were pressed into service for any

night interior when light was needed in the background. The electricians would also lay them on the ground and build black wrap snoots in order to control where the light was spilling.

Peanut bulbs proved ideal for supplementing the light supposedly coming from table lamps. The 120-volt bulbs (rather than the more common 12-volt versions) were wired through a hole that was drilled into each saloon table, right next to the oil lamp. "We had a whole bunch of them made up on pigtailed, and we would feed them into a dimmer line," Loewen recalls. "We would rotate the lamps so the side toward the camera was in black wrap, then turn the fixture so light spilled away from the lamp to whatever we were trying to light."

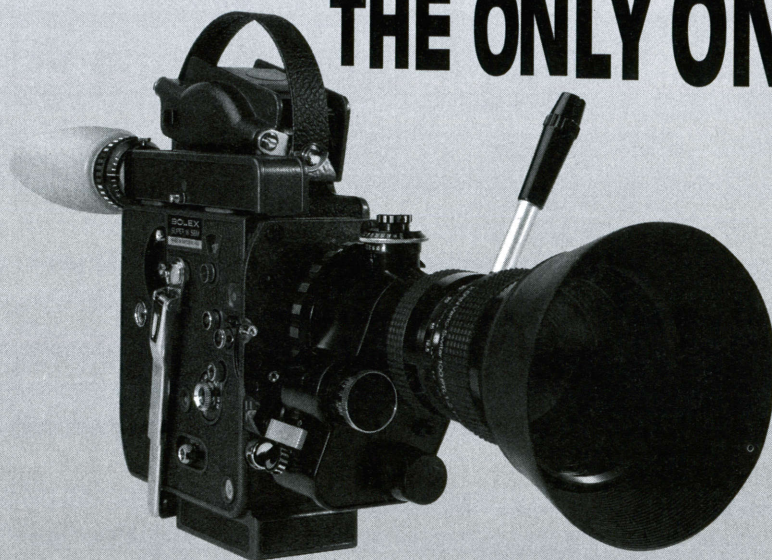
To get the most out of candles and oil lamps, the camera's aperture had to be as wide-open as possible, and all of the saloon interiors were shot at a stop of T2. "Focus puller Kirk Chiswell did an absolutely amazing job," remarks Kuchler. "Michael frequently wanted to shoot without rehearsals, which meant that we were improvising what would happen. With the depth of field so small, Kirk was constantly guessing the distance. If it weren't for him, I would have had many more problems."

Kuchler also expressed high praise for Carey Toner, who was both A-camera and Steadicam operator, and key grip John Adshead. *The Claim* marked the first time that Kuchler, who is accustomed to the European division of labor, had worked with a lighting grip, and he gives Adshead high marks. "John was utterly fantastic," he enthuses.

Setting up a dolly in hip-high snow is extremely difficult — it invariably sinks — so a Steadicam was used frequently. Kuchler, who was often manning the B-camera (80 percent of the film was shot with at least two cameras, partially as a time-saving measure), would have liked to have done more handheld shooting, but the weather conditions precluded it. "You would slip, slide or sink, and the image would become very shaky," he laments. The few times he succeeded in doing a hand-

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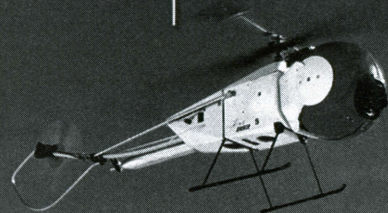
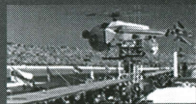
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held shot, he needed at least two people around him to protect him from the wind.

Sometimes it was so windy that crewmembers found it impossible to even stand up. For some shots, three people were required simply to ram a tripod into the snow. To combat the problem, sandbags proved a handy innovation; often the camera simply rested on top of them.

The bone-chilling cold weather also presented at least one novel problem for the filmmakers. Initially, Kuchler wanted to use helium balloons to illuminate the only town night exterior that required movie lights, but the frigid temperatures thwarted him. "Normally, the lamp heats up the air and makes the balloon float," explains the cameraman, with a hint of amusement. "But it was so cold that the balloon never floated up! Since there was no way to get a crane over the mountain, we wound up lighting the scene from inside the passing windows." In addition, one Wendy light was hidden behind a nearby building.

The crew did manage to get a camera crane for a critical moment where the characters played by Sarah Polley and Wes Bentley ride horses across a field of snow toward the mountains. The previous shot shows them riding out of Kingdom Come, leaving behind the lively, busy town filled with activity and people bustling about. "When Sarah rode away, we wanted it to feel very liberating for her," says Kuchler. "We wanted to open up the mountains in front of her, so we used a crane. The camera goes up and reveals the mountains over the hilltop, which gives you this feeling of looking into the depths of the mountains."

Perhaps the film's most fantastic scene involves the unusual house that Dillon buys for his bride. The dwelling was built specifically for the movie, and at one point in the film it is transported down a hill by an army of horses and men. A bulldozer provided the real power needed to move the structure, but because Winterbottom wanted to show the entire scene from a distance,



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the powerful tractor had to be built inside the house. "That was a pretty spectacular moment," marvels Kuchler. "We put a camera inside the house, and suddenly the trees outside the windows began to move. You can't imagine the noise the wood made from the tension of the pulling power." By the time the house made it down the hill, it required major repairs. "It looked like the leaning Tower of Pisa," quips the cameraman.

Despite the extreme weather conditions and the inevitable inconveniences of a remote shoot, Kuchler loved working on *The Claim*. "It was like traveling back in time," he offers. "Every morning we would drive from the hotel in Calgary to the mountainside. At the ski area [parking lot], we'd climb into snowmobiles and head over the mountain top. On the other side, you could see this entire town built into a valley, with old saloons and cowboys on horseback. It felt as though we were crossing over the mountain into the 19th century."

High Honor

Jack Cardiff, BSC will receive an honorary Oscar saluting his career as a cinematographer and his pioneering work in color film at the 73rd Annual Academy Awards on March 25.

This will mark the first time a director of photography has been the recipient of such an award in recognition of his cinematography. In the past, the academy has given out awards for cinematography-related achievements. In 1952, George Alfred Mitchell was presented with an honorary Oscar for designing the Mitchell camera. From 1936-38, honorary award plaques — not Oscars — were given for color cinematography before the craft was given its own Academy Award category; W. Howard Greene, ASC and Harold Rosson, ASC jointly received one in 1936 for *The Garden of Allah*. In 1937, Greene got one for *A Star Is Born*. In 1938, Oliver Marsh, ASC and Allen Davey, ASC jointly received one for

Sweethearts. Also in 1938, J. Arthur Ball was awarded an honorary scroll for his contributions to the advancement of color in motion-picture photography.

Born on September 18, 1914, in Yarmouth, England, to vaudeville parents, Cardiff took to the silent screen at the age of 4. When he was 14, he slipped behind the camera on the last sizable silent film made in England, *The Informer*. Within two years, he was the clapper boy on Alfred Hitchcock's *The Skin Game*. Following that film, he served as camera assistant and camera operator on more than 18 productions. He later accepted a trainee position on the new Technicolor process at Denham Studios. In 1937, Cardiff shot the first Technicolor film in Europe, *Wings of the Morning*.

He has enjoyed a long, successful career as both a cinematographer and a director, and it is his outstanding cinematography that the academy's Board of Governors feels warrants

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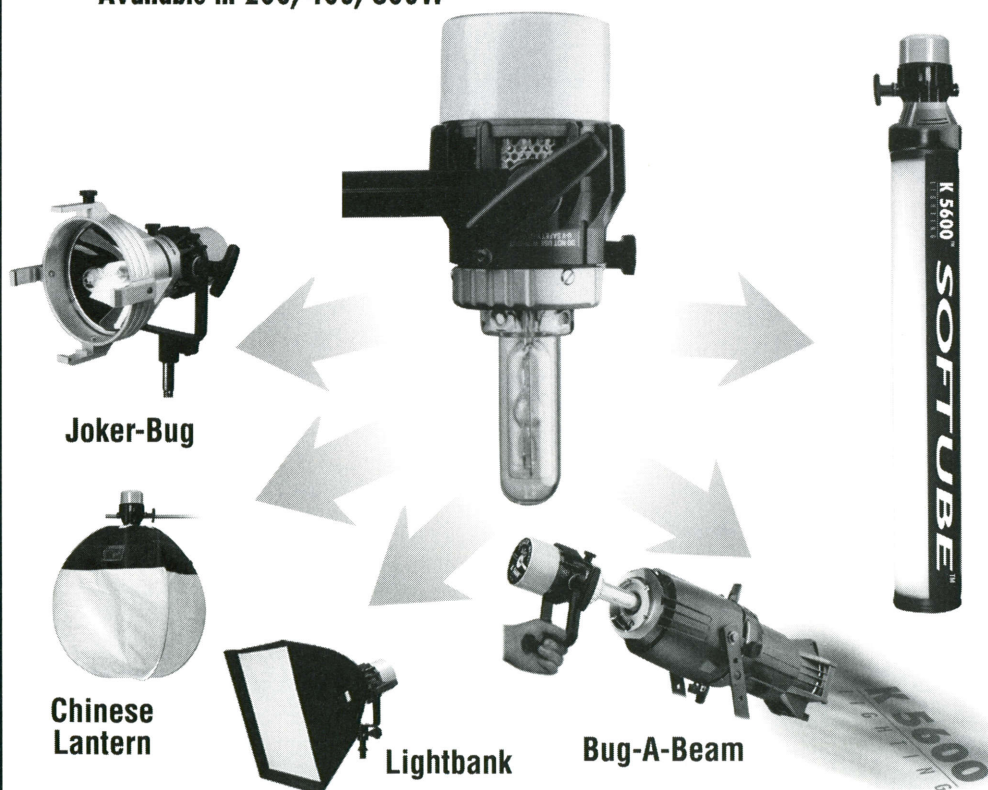
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special recognition this year. The way Cardiff filmed color motion pictures on soundstages and in difficult locations pushed the boundaries of color film as black-and-white productions gave way to color productions. He photographed many films in Technicolor (including *The Red Shoes* in 1948), VistaVision (including *War and Peace* in 1956), and CinemaScope (including *Fanny* in 1961). *War and Peace* and *Fanny* each earned Cardiff an Academy Award nomination.

The three successive films Cardiff shot for acclaimed director Michael Powell — *A Matter of Life and Death* (a.k.a. *Stairway To Heaven*, 1946), *Black Narcissus* (1947) and *The Red Shoes* — marked a turning point in the cinematographer's career. "There is no doubt I owe my career and subsequent success to Michael Powell," Cardiff proclaims.

Cardiff won an Academy Award for Best Cinematography for *Black Narcissus*. He was nominated for an

Jack Cardiff, BSC with his ASC International Award in 1993.

Oscar and won a Golden Globe for directing *Sons and Lovers* (1960). He was the recipient of the ASC's International Award in 1993 and the BSC's Lifetime Achievement Award in 1995.

Cardiff did most of his directing in the 1960s, serving as cinematographer only on *Fanny*. However, he directed and shot two films in 1968, *The Mercenaries* and *Girl on a Motorcycle*. In 1960, he directed *Scent of Mystery*, the only film produced in the sensory-stimulating Smell-O-Vision format.

Cardiff's numerous cinematography credits include *Under Capricorn* (1949), *The African Queen* (1951), *The Master of Ballentrae* (1953), *The Vikings* (1958), *The Prince & The Pauper* (a.k.a. *Crossed Swords*, 1978), *Ghost Story* (1981), *Conan the Destroyer* (1984), *Cat's Eye* (1985), *Rambo: First Blood Part II* (1985) and *Call From Space* (1989). ■



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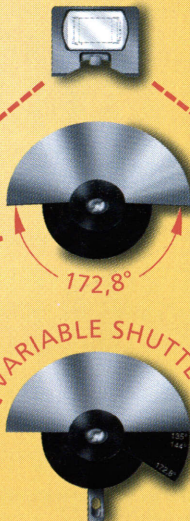
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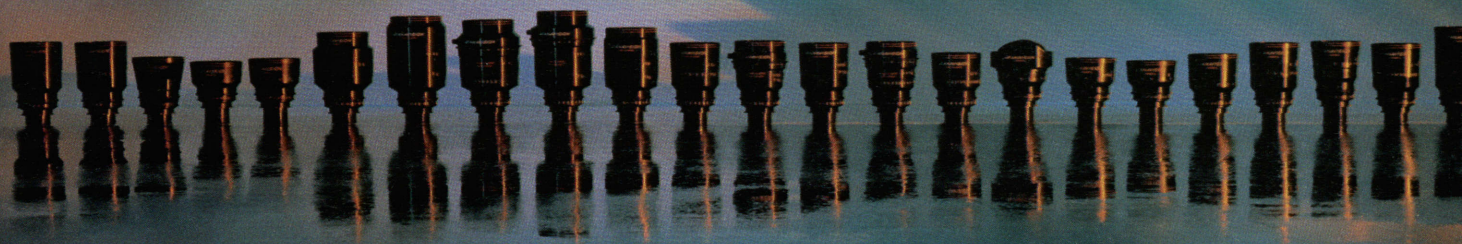
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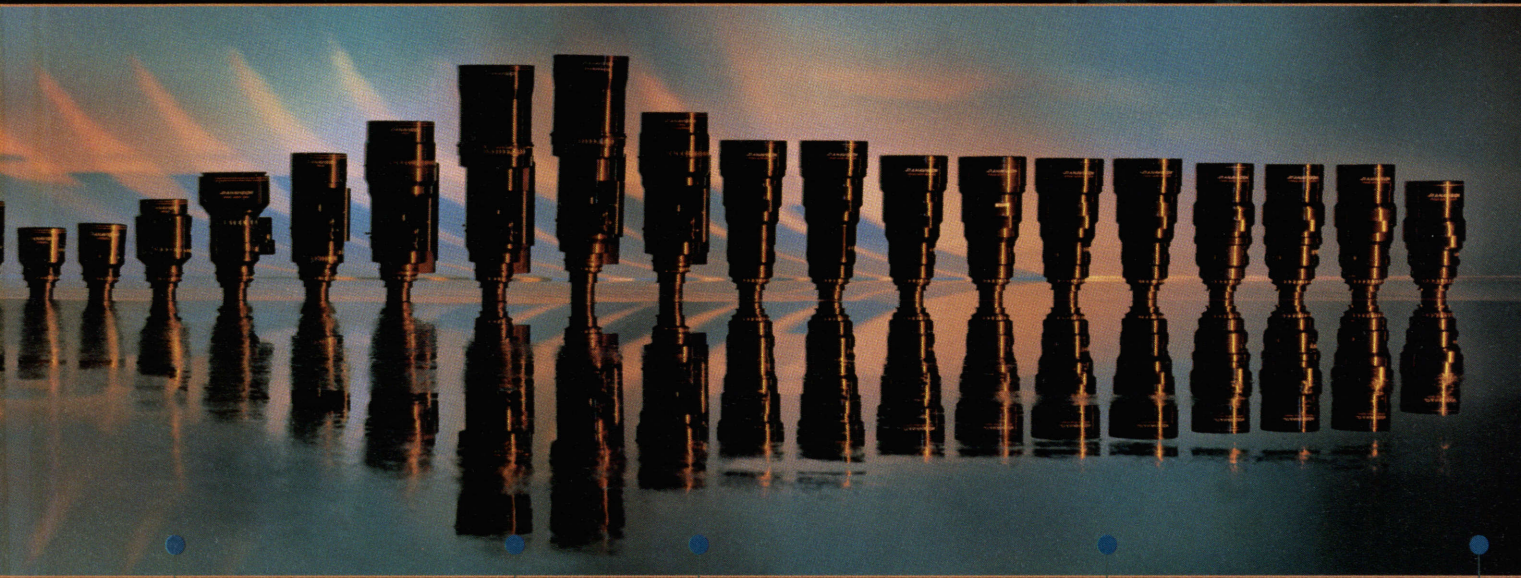
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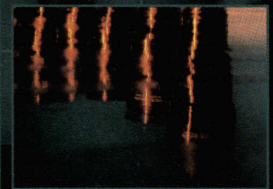
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Life in the Fast Lane

Drugs and money
pave one man's road
to ruin in *Blow*,
a fast-moving
drama with plenty
of retro style.

by David Wiener

Unit Photography by L. Sebastian

Spanning the 1950s to the 1990s, *Blow* tells the harrowing true story of George Jung, "a small-town boy [who] made \$100 million with the Medellín cocaine cartel and lost it all," in the words of Bruce Porter, who wrote the 1993 book on which the film is based. Jung's story may not be pretty, but like many larger-than-life crime sagas, from *The Public Enemy* to *Goodfellas*, it is definitely gripping.

Cinematographer Ellen Kuras, ASC remembers, "I was very keen to work on this with [director] Ted Demme because I'd heard a lot about him, and I wanted to see the kind of take he had on a subject that had already been explored in films such as *Scarface*. Teddy hired me because he liked how edgy my cinematography was, and he wanted to bring that [aesthetic] to *Blow* and experiment with new looks."

Photos courtesy of New Line Cinema.

Kuras, a two-time winner of the Sundance Film Festival's Best Cinematography Award, began her career in 1987 by making documentaries. Her feature-film credits include *Swoon*, *Postcards from America*, *Angela*, *I Shot Andy Warhol* (see AC April '96) and *Summer of Sam* (AC June '99). Demme was very taken with Kuras's work on *Summer of Sam*, not only because of her lighting style but also because she incorporated a wide variety of stocks into the final film. Kuras explains, "Teddy felt that using different stocks would be a good way to differentiate the time periods in *Blow*. I knew, however, that our biggest challenge would be to determine what combination of lighting, lenses and labwork, as well as film stock, would help to characterize each period and locale."

Blow follows Jung (played by Johnny Depp) from his earliest years in Massachusetts in the Fifties, through the swinging Sixties in California, then on to the cocaine empires of Mexico and South America in the Seventies, and finally into prison during the Eighties and Nineties. "The script covers five decades and more than 60 locations, and we wanted them all to have their own distinctive look," Kuras says. "Gaffer John Nadeau and I had many discussions with production designer Michael Hanan, during which we worked out separate color palettes for the locations and the time periods. For example, there were scenes set in the 1960s in both Manhattan Beach and Massachusetts; for the Manhattan Beach scenes, we used partially corrected tungsten light, whereas for the Massachusetts scenes, we relied on the cooler colors in the production design to give the impression of a northeastern town during the same period."

The cinematographer notes that Demme had clear ideas of how he wanted *Blow* to look, and she and he began clarifying those ideas by referencing *Blow* in terms of films,



television shows, fashion photography and home movies. "For example, he showed me several shots from a Laurel and Hardy movie to illustrate how he imagined *Blow*'s Fifties look," she recalls. "I also did a lot of research on how society has pictured itself during the past five decades and put together a book of different looks from the Fifties to the Nineties. As

visual resources we used tearsheets and still pictures I had taken on location and manipulated in Panavision's Kodak PreView System. That enabled me to emulate looks anywhere from cross-processed reversal to certain magenta-filter combinations."

Based on her initial experiments with the PreView System on location, Kuras conducted a series of

Opposite page: George (Johnny Depp) and his West Coast connection, Derek Foreal (Paul Reubens), get high on their own supply. **This page:** After savoring the perks of his profession, George discovers the pitfalls.



Life in the Fast Lane



Above: The close-knit but troubled Jungs share a moment together. To lend these early scenes a vintage Fifties feel, cinematographer Ellen Kuras, ASC employed cross-processed color reversal stock and old-school lighting schemes.

Below: Kuras switched to Kodak's 5293 stock for most of the film's Sixties scenes, warming up the look with filtration.

tests to determine which stocks and processing methods would work best for each decade. "We didn't want the time periods to be too radically different," she says, "because the technique would be too obvious, and I didn't want the audience to be preoccupied with the look. I felt that the look should enable viewers to lose themselves in the story."

Kuras's intensive exploration of appropriate film stocks gained a personal dimension through a coincidence involving her gaffer, Nadeau. His father, Gale Nadeau, Jr., had spent his entire professional life working for Kodak, so he happened to be a living encyclopedia of emul-

sion history. "He wound up taking a very personal interest in helping us," Kuras recalls. "It was wonderful and informative to talk to him about the old emulsions. Early in the prep period, John and I relied on Gale to help us figure out the color combinations necessary to achieve the Sixties and Seventies looks. I finally understood why Seventies films look the way they do! At 5 every morning on our way to the set, John and I updated his dad on *Blow's* progress."

For the film's Fifties look, Demme and Kuras wanted to achieve "a Technicolor look with deep, rich colors — very blue skies and reds that were really visceral and satu-

rated," the cinematographer explains. "It's difficult to get that look with negative stock, so we did a number of tests on reversal stocks." Kuras compared two Kodak color reversal stocks: Ektachrome 5239 (daylight 160 ASA) and the newer Ektachrome 5285 (daylight 100 ASA). The latter film is available as Ektachrome E100VS professional still-photography film. Having used 5239 before, Kuras was at first inclined to use it again, but the comparison tests led her to choose the 5285. "I did several tests on both stocks, cross-processing [resulting in a negative] and normally processing the film as a reversal, positive image, which took us to three different labs," Kuras explains. "I wasn't happy with the 5239 processed as reversal because the lab test revealed processing streaking and inconsistency. Teddy also responded better to the 5285 because the blues were much stronger and more saturated. Although New Line was very accommodating through all of this testing, they mandated that we couldn't skip bleach. I originally thought about doing bleach-bypass on the prints as a way to unify the periods, but no bleach-bypass was used on *Blow*."

"Although the 5285 looked great, it was tricky to work with," Kuras continues. "It's very sharp, contrasty and slow — we rated it at 25 ASA with an 80A filter in tungsten light — and it has very little latitude, maybe four or five stops. I tried flashing it, but that just milked out the shadows. We therefore had to fill all the shadow areas as much as possible. The day-exterior wide shots became extremely difficult to shoot, especially when they were scheduled as pickup shots with a reduced lighting package. We tried to use a phalanx of 12-by-12-foot checkerboard reflectors for bounce fill, yet we were constantly bringing out bigger lights like Maxi-Brutes to try to fill in the shadows."

Kuras notes that the use of



reversal stock also significantly affected the production's hair and makeup departments. "Because skin tones and hair color show up differently on reversal, those two departments were very involved in the tests to determine how to deal with the positive stock," she says. "We needed to enhance the appearance of the actors' youth for the Fifties scenes. I wanted the faces to look smooth and clean, more like alabaster. The hair and makeup staff were fantastic through all of the film's changes."

The performers' youthful appearances in the 1950s scenes were also enhanced by recreating the lighting techniques used in that era. Plenty of fill light was the rule back then, along with strong frontal lighting to erase wrinkles and lines on performers' faces. Kuras's basic Fifties formula consisted of $\frac{3}{4}$ -corrected tungsten key lights with tungsten Maxi-Brutes bounced into 12' x 12' muslin for fill. "We always had to make sure we were getting sufficient stop because we were working in the anamorphic format," she explains, noting that her usual stop on *Blow* was between T4 and T5.6. "Of course, as Jung got older, he had to look as though he'd been through a lot. To represent those later years, we used more light from the side with less fill in order to show more lines and shadows in his face. We had to be careful, though, because Johnny wore a broken-nose appliance as the older George, and we had to help 'erase' the seam."

Special care had to be taken with Depp's close-ups even in scenes involving a more youthful Jung, because the actor's distinctive cheekbones tend to cast a shadow beneath his eyes. "We made sure that we always had a special [rig] on hand just for Johnny," Kuras says. "A big, soft source is what we'd usually use to fill in that part of his face, but many of our locations were so tight that there just wasn't enough room for that type of unit. Instead, we had to



Above: George and Mirtha (Penelope Cruz) tie the knot in a decidedly casual marriage ceremony. **Below:** George and his partner, Diego Delgado (Jordi Mollà), find themselves rolling in dough.

change Johnny's eyelight depending on the space we had. At some locations, we might set up a Par can just for him; at others, we'd use a 10K or a Chimera with a 500-watt bulb.

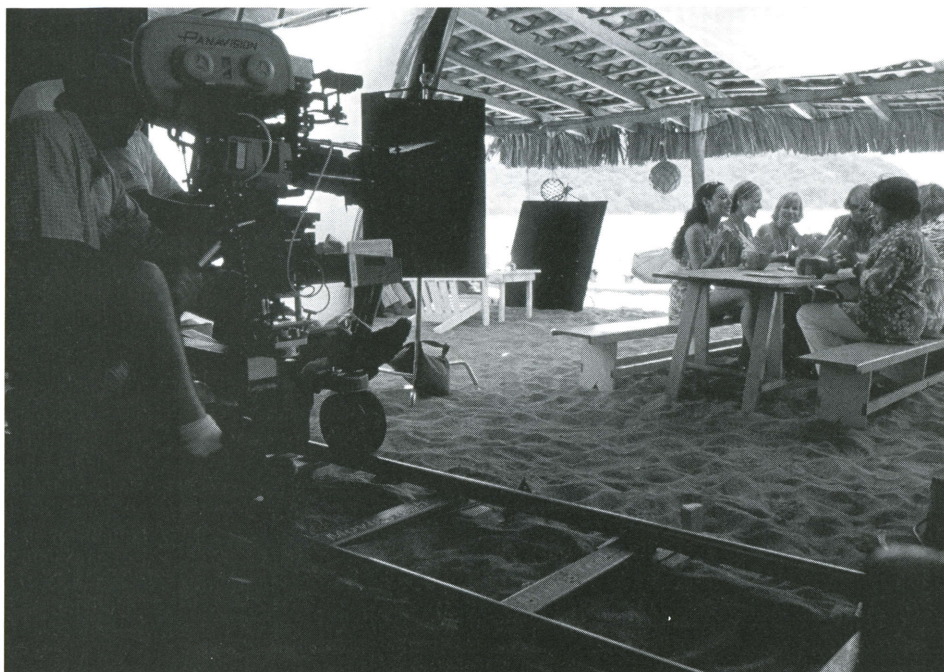
"I never used to use eyelights," she adds, "because I always thought they felt artificial. But on this production I became very attentive to the angle of the keylight and the addition of a special eyelight on Johnny."

Kuras reviewed most of the 5285 dailies on DigiBeta video, but she requested that some of the footage be optically printed to an internegative (IN) and a dailies print so that she could check for problems

and color levels. Months later, when she saw the Fifties material cut together, she realized that the wide shots edited back to back made the images appear busier and more contrasty. "I was especially unhappy with the wide exterior shots that had a lot of shadow area," she offers. "I thought the audience might have a difficult time following the action. From watching the earlier dailies, I knew I'd probably flash the IN during the last stages of postproduction. I tried a 30-percent flash on the IN to reduce the black levels in the shadows, but the reversal scenes *still* looked too contrasty. I also took the sequences to Cinesite in an attempt



Life in the Fast Lane



Above: The camera dollies past a 1960s beach scene.

Below: Director Ted Demme helps Depp get into a groovy mood.

to bring the contrast levels down electronically, but Ted preferred the flashed look."

Kuras toyed with a lot of different ideas for the Sixties because of that era's distinctive look. "We wanted to make those scenes very alive, because they represented the period when Jung moves to California, discovers the world and girls, and enters a whole new phase in his life. I thought about cross-processing the

5285 into a negative for the 1960s scenes, but when I tested it, the image screamed; we ended up using cross-processed 5285 very sparingly for some flashback sequences. We finally settled on 200 ASA [EXR] 5293, which is balanced for tungsten. For our 1960s lighting combination, John [Nadeau] and I used tungsten Maxi-Brutes with partial correction, $\frac{3}{4}$ CTB. Rather than warming up HMIs, we slightly cooled off tungsten. For

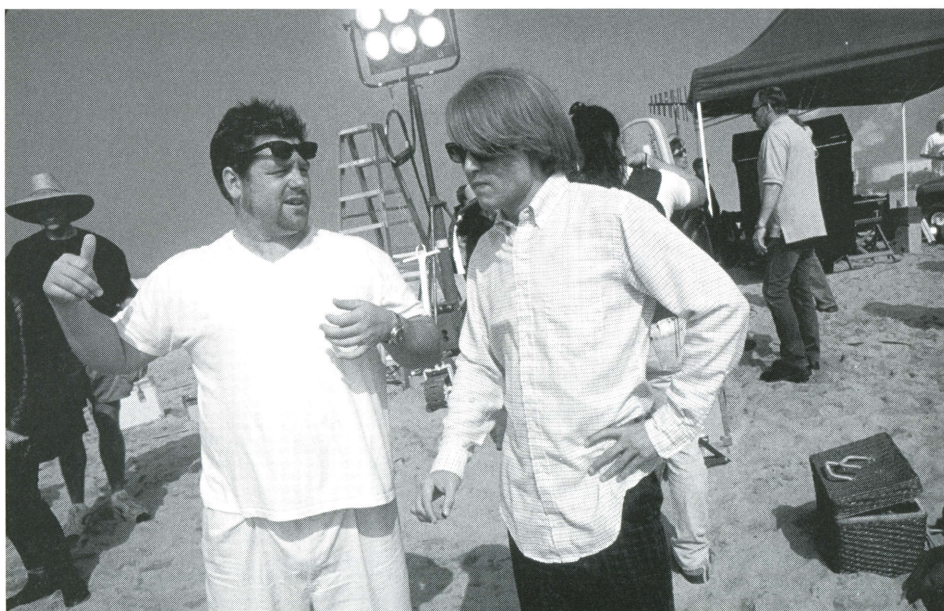
the 1960s beach scenes, we used carbon-arcs. Overall during the Sixties sequences, we kept a consistent, warm backlight whenever possible — and used a lot of fill!"

For the film's Seventies sequences, Kuras employed Kodak Vision 500T 5279 film stock "because I wanted the blacks to flatten out a bit; I wanted to see into them as much as possible." She pre-flashed all of the Seventies night-exterior scenes at 15 percent to cut through some of the contrast and bring up the blacks. "I wanted to milk those blacks out a little bit," she says, "because blacks that are a bit milky lend a Seventies-period feel."

Vision 500T 5279 stock was also Kuras's choice for the Eighties sequences. "The most significant change in the look for the 1980s was the lighting we used, which shifted to HMIs," she notes. "HMIs have a particular quality and color that I think characterize the Eighties. We only gelled them on rare occasions, when we used cosmetic peach. We also decided to minimize the backlights/kickers for those scenes, using them only for background separation. The other change in our approach for the Eighties scenes was the introduction of the rounder Primo series lenses, which I'll discuss later."

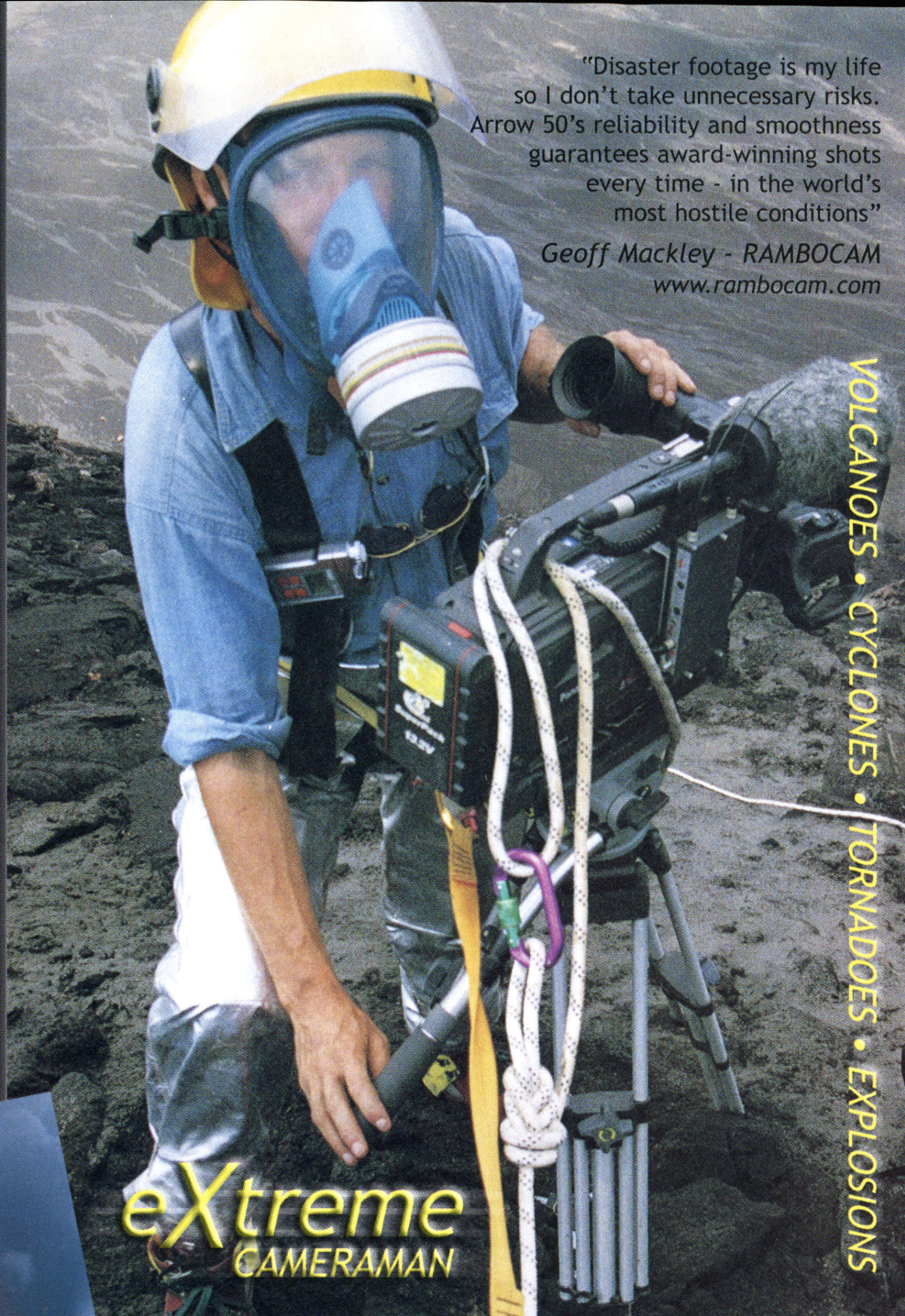
For the film's Nineties scenes, Kuras switched from Kodak stocks to Fuji 8551 and 8550, corrected only with an 81EF in front of the lens "to bias the look toward the cool side." She continues, "I lit the 1990s predominantly with HMIs as well. You'll definitely be able to see the difference between the 1980s and 1990s scenes; for the Nineties, I wanted to bias the curve toward cyan blue and green, which is why I went with Fuji."

The cinematographer also employed Fuji film stock for all of *Blow's* prison scenes, which range from the 1960s to the 1990s as Jung experiences a meteoric rise and fall as a drug dealer. "I wanted the prison



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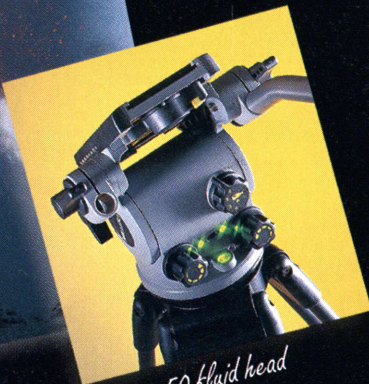
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Life in the Fast Lane

George's hedonistic birthday bash is cut short by the cops, who drag a strung-out Mirtha off the property (bottom). The diagram on the facing page shows the lighting and camera setup for a speedramped dolly shot from Jung's POV as his daughter, Kristina (played by Emma Roberts) is led into the same driveway.



scenes to be consistent throughout the film, partly to suggest that time stands still there, but mostly because the 1990s serve as the backbone of the story and are established as the film's present," Kuras notes. "The 1990s scenes of Jung in prison are interspersed throughout the movie, so I needed to make them distinctive so as not to confuse the audience."

A significant variable that changed with each of the decades represented in *Blow* was Kuras's choice of lenses. "Focus puller Baird Steptoe and I realized that one way to recapture the look of the Fifties, Sixties and Seventies was to use the earlier series Panavision lenses," she

says. "They inherently have more flare and a flatter, less contrasty look." Although the picture was originally planned as a Super 35 project, the cinematographer suggested going anamorphic after conducting a scavenger hunt for old lenses. She relates, "During the checkout, Baird and I were talking with Bob Harvey, senior vice president of sales at Panavision. I said, 'I'd love to do an anamorphic picture someday.' And Bob replied, 'Well?' I said, 'You mean *this* movie?' He said, 'Why not?' Baird had a huge grin plastered all over his face because he had checked out most of the spherical lenses, and also because anamorphic, with a shallower depth

of field, is more difficult for the focus puller. I told Baird, 'Don't worry, I'll be sure to give you enough stop,' and I laughed.

"We abandoned all of the old spherical lenses and replaced them with old anamorphic lenses, mostly C- and some E-series primes, ranging from 30mm to 800mm," she continues. "The C lenses are smaller and lighter, so they're great for handheld shots. We also used zooms, because Teddy liked the idea of manual zoom shots; we did a number of zooms that had a sort of searching feel to reinforce the period look." A Panaflex Millennium camera and a Panaflex Platinum rounded out the equipment package.

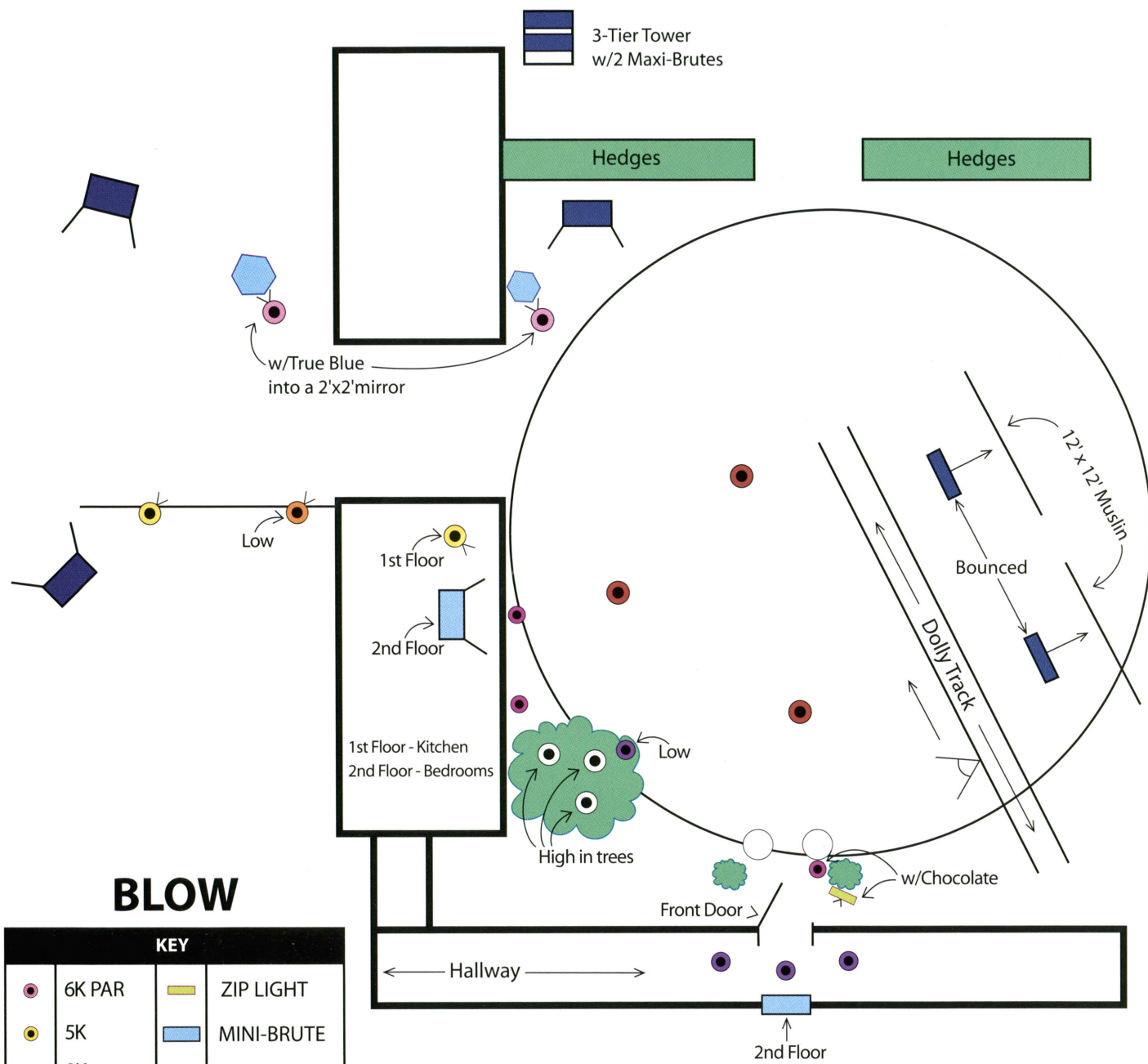
One of the few instances in which the lens Kuras used was inconsistent with the period represented was a speed-ramp shot during a night-exterior scene set in the late Seventies at Jung's lavish mansion (see diagram on facing page). Jung's birthday bash is broken up when undercover police posing as waiters and waitresses pull their guns and escort the stunned guests out the door into a circular driveway/courtyard, where police cars are waiting.

The diagram shows the lighting and camera setup for the speed-ramp/dolly shot from Jung's POV as his daughter is led into the driveway. The camera tracks with Jung's daughter, starting at 24 fps and then quickly ramping up to 100 fps. "The shot necessitated a zoom, and Baird and I opted for the Primo 11:1 over the older lens because it was much faster, and a high frame rate and stop were necessary for the ramp," Kuras explains. "At 24 fps the exposure was T8.5, and at 100 fps it was T4.5.

"To the naked eye, the location was as bright as a hospital operating room," she adds, "and Ted had to check it through John Nadeau's gaffer's contrast glass to reassure himself that the area wasn't overlit."

Low ground lights (not shown in the diagram) were scattered





Based on a sketch by gaffer John Nadeau, the diagram above details the lighting setup for a scene in which the characters walk out the front door of Jung's mansion into a circular driveway, where they are loaded into police cars and driven away.

In one of their more romantic moments, Mirtha seduces George with a very sultry lap dance. The 360-degree shot (note circular dolly tracks in background) was filmed in the ballroom of the Roosevelt Hotel in Hollywood, California. Kuras lit the sequence with an Arriflex Ruby 7 hung directly overhead, aimed straight down through a 4' x 4' diffusion frame and a primary red gel. The crew also added some atmospheric smoke to obscure the room's walls.



around to throw light between the police cars. Two Redheads uplit the mansion's columns and architectural details. Three spot Pars in trees, three 6K space lights, and two Maxi-Brutes bounced into 12' x 12' muslins were needed to light the central area of the driveway. As Jung's daughter is taken out the front door, she is lit by a soft Zip light and a Redhead, both gelled chocolate. In the distance (top of diagram), a Maxi-Brute in front of a hedge and two Maxis high on a steel tower pumped in additional light. The flashing effect of squad-car lights was created by aiming two true-blue-gelled 6K Pars into two separate 2'-tall hexagonal mirror drums, turned by hand during takes. The "2nd floor Mini-Brute" at the center-left of the diagram backlit the actors as they walked toward the police cars; two 5Ks and a low 1K Par edge-lit the cars as they drove away.

In the film, Jung and his wife Mirtha (Penelope Cruz) have a rocky marriage that is perfectly illuminated by Kuras's edgy style. According to Porter's book, the relationship began with romantic, candlelit dinners and ended in cross-dressing and sado-masochism. Demme shot two similar scenes showing the course of the couple's strange liaison, almost identical in setting and lighting but distinctly different in emotional impact. "In the early seduction scene, Mirtha puts the moves on George by giving him a private dance," Kuras recounts. "George is seated on a chair and Mirtha dances around him as the camera does a 360-degree tracking shot. We rolled a number of mags on the actors while Teddy played the music they wanted to hear."

Demme didn't want to see any walls in this shot, which was a tall order for a 360-degree move filmed

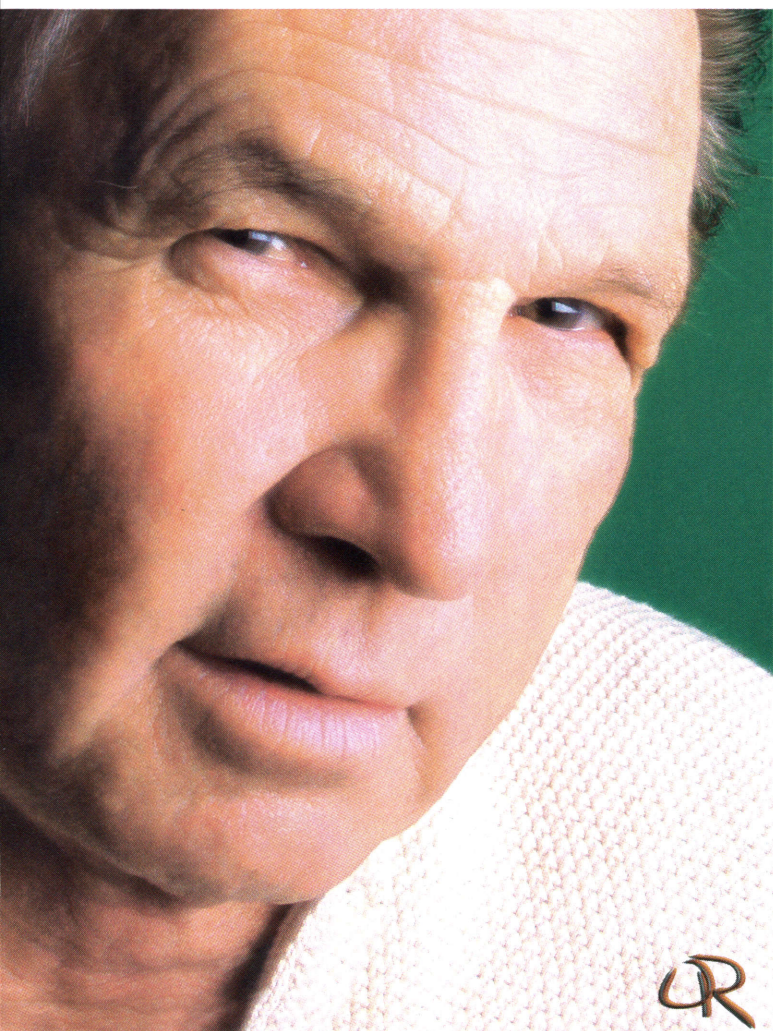
Life in the Fast Lane

on location in the ballroom of the Roosevelt Hotel in Hollywood. A single source was used to solve the problem: an Arriflex Ruby 7 light was hung directly overhead, aimed straight down through a 4' x 4' diffusion frame and a primary red gel. A little atmospheric smoke was added, and the walls disappeared.

The couple's S&M interlude was filmed on a soundstage. "Teddy decided to present the volatile aspects of George and Mirtha's love life in a series of quick-cut S&M shots, a sort of visual summary," Kuras says. "We planned this to be a montage that would show their crazy side. Teddy wanted the S&M shots to have an edge, but he also wanted to retain some of the lyrical quality [of the earlier interlude]."

The Ruby 7 was used as more of a backlight with no fill for this sequence, and six Par cans were mounted along the walls of the set and gelled with garish pinks and reds. As the camera moved around Depp and Cruz, the Pars were selectively dimmed to keep the performers backlit.

Another distinctive element of *Blow*'s visual strategy is its "unmotivated" camera moves. Kuras and Demme spoke at length about her work on *I Shot Andy Warhol*, which employed that approach. Kuras explains, "An unmotivated move is nontransparent; the audience becomes aware of what the camera is doing, so the move has to be thought out very carefully. It was clear to me that Teddy had thought out a lot of the camera moves and camera placement during the six years he spent developing *Blow*, and he wanted to give it an edge. Because of my work in *I Shot Andy Warhol*, he knew I wouldn't be afraid to challenge the conventional film language. We use a lot of unmotivated camera moves and pans in *Blow*, such as tracking forward and tracking around an actor — moves that Teddy really wanted to experi-

DONALD M.
MORGAN, ASC

Digital photo by Owen Roizman, ASC, using the Kodak DC-4800.

*"...Entering into the motion picture business as an aerial cameraman, I didn't put much thought into the craft and artistry of lighting. I was asked if I could do a small presentation film involving lighting and much to my surprise, I said, 'yes'. The excitement of exploring this new territory gave me the inspiration and courage I needed to expand my limited knowledge of cinematography. This is where the **American Cinematographer** magazine came into my life.*

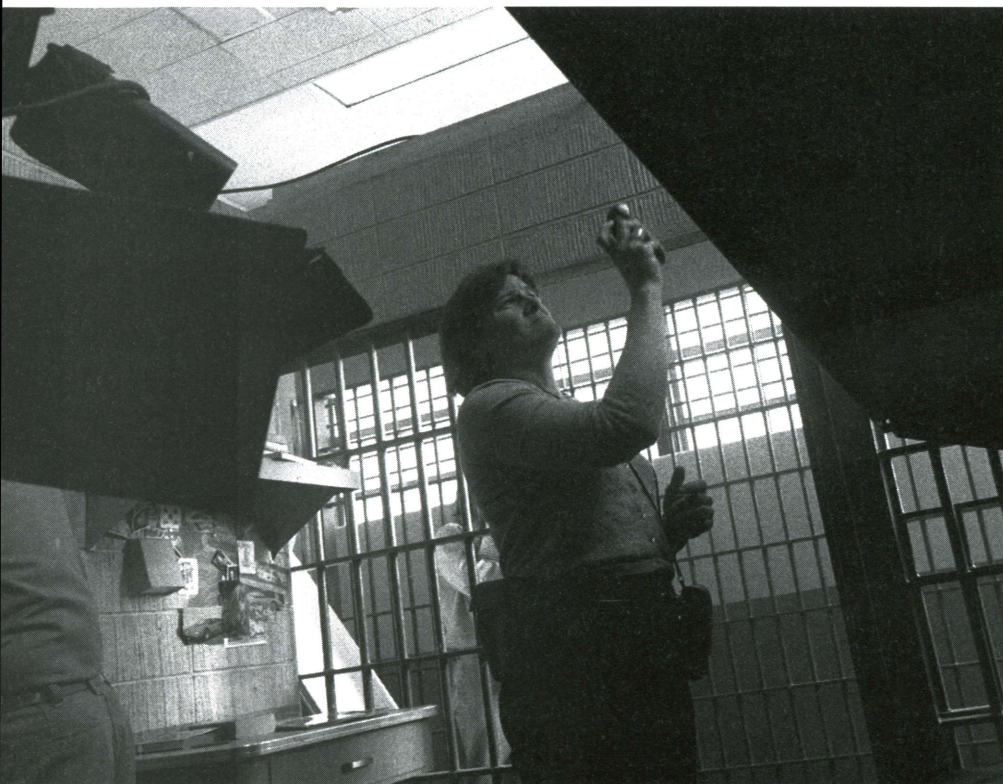
AC was my main source of information, allowing me into the heads of many great cinematographers, who offered insight into what it would take for me to make a career in this fascinating business. From the equipment ads to the in-depth, detailed how-to descriptions of the shooting process, I gained confidence in my ability to jump in and give it a try."

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Life in the Fast Lane

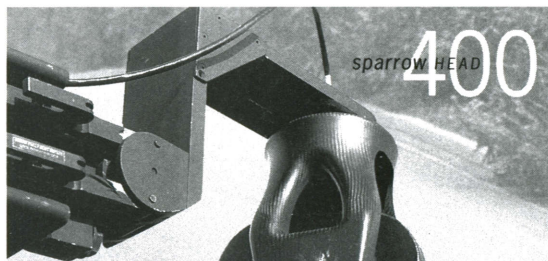


Serving (and enjoying) a life sentence in cinematography, Kuras takes a light reading in a jail cell.

ment with. Most of them call attention to a particular moment or a character's reaction."

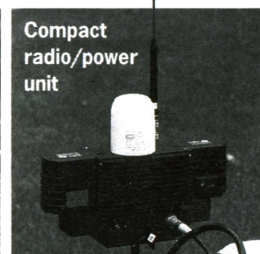
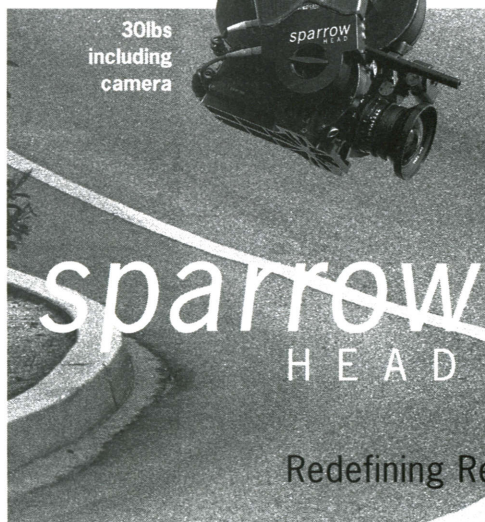
One convention Kuras tried to follow while re-creating the film's earlier decades was the camera language established in the 1950s and 1960s, which was dictated by the technology available at that time. This meant that tracking shots were achieved primarily on a dolly and track, rather than through the use of Steadicam. "Steadicam hadn't yet been developed back then," she points out. "If we had to use it for something in the 1950s, 1960s or 1970s — usually to help an actor avoid stepping over track — we did our best to make it feel like a dolly move."

Careful labwork was also a key component of Kuras's strategy for *Blow*. She worked closely with Don



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Cellmates George and Diego find that they share a mutual ambition.

Capoferri and Mark Van Horn at Fotokem to select a specific set of printer lights for each decade. "We could've used different sets of camera filters for each decade, but I didn't want to put a lot of glass in front of the anamorphic lenses," she says. "The 1960s scenes were printed with more points of red-yellow, and the 1970s were printed with two points of magenta."

Kuras concludes, "*Blow* was one of the most collaborative and enjoyable experiences I've ever had on a film. Everyone on the crew was tremendous, including Baird, John, A-camera/Steadicam operator Andrew Rowlands, key grip John Janacek, and best boy/substitute gaffer Simone Perusse. Teddy always maintained a feeling of serious levity on the set, which counts for a lot." ■



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The Frozen Moment

On *Swordfish*, cinematographer Paul Cameron and director Dominic Sena team with Reel Efx to push the use of still-camera arrays even further.

by Christopher Probst

Unit Photography by
Christopher Probst,
Susan Gill, Jim Gill
and George Millington

Photos courtesy of Christopher Probst.

Film, like every other facet of life, has its share of trends. Whether it's the gauzy black-and-white closeups of the 1930s and '40s, the gratuitous zooms of the '70s, or the dolly-zoom Hitchcock homages prevalent in scores of student films (and a few notable modern classics like *Jaws* and *Goodfellas*), eras in film history can often be easily identified by their technical fixations.

The current rising cinematic fad, the multi-camera array, first gained widespread popularity in a Gap clothing ad that featured a flashy "frozen moment" of a Khaki-clad swing dancer suspended in mid-aerial as the "camera" deftly circled around him. Further popularized by the smash sci-fi hit *The Matrix* (see AC April '99), still-camera array shots soon began appearing in scores of commercials, music videos and films. In fact, one of *The Matrix's* more infamous multi-camera array shots was recently spoofed in the comedy *Scary Movie*, further imprinting the technique on the public's collective visual consciousness.

While shooting the upcoming summer release *Swordfish*, director Dominic Sena and cinematographer Paul Cameron sought to create an adrenalized, eye-popping opening sequence that would impress even today's savvy, image-saturated audiences.

"At the beginning of the film, we introduce our main character, Gabriel Shears [John Travolta], in a very impressionistic way," says Cameron, who had previously partnered with Sena on last summer's action thriller *Gone in 60 Seconds* (AC June '00). "We start out with a scene of Gabriel delivering what is essentially a monologue, and we shot that part of the sequence in a very stylized way, using Swing-and-Tilt lenses. Then, in the first reverse shot, we see that 20 S.W.A.T. officers are pointing guns at him. They walk



across the street toward a bank, where we realize that the entire intersection is basically under siege; inside the bank, 30 hostages are wrapped in C-4 explosive and ball bearings. When one of the captors brings a hostage outside, there's some confusion, and one of the S.W.A.T. officers shoots the bad guy. The hostage immediately tries to get back into the bank, but the S.W.A.T. guys try to pull her away. However, they don't know that she's wearing an electronically triggered detonating collar. When they cross the electronic threshold, she explodes in a massive blast that sends people and cars flying, as well as ball bearings ripping through the air."

For the subsequent sequence depicting the horrific destruction caused by the blast, the filmmakers raised the visual ante by using Reel Efx's Multicam still-camera array. (For more in-depth analysis of the hardware, see Short Takes in AC Dec. '99.) "Dominic wanted to do a shot that really set the stage for the film," Cameron relates. "We've all seen

hostage scenes before, and we've seen explosions as well. So how do you come up with an opening that will have an impact on people and show them something they're not used to seeing? We wanted to devise a shot that really showed the extremes of destruction that would occur after an explosion like this. In most still-camera array shots, the camera usually circles around the subject in a cylindrical sort of way on the same nodal point. Our objective was to turn our shot into much more of a traditional dolly move, except that the camera would theoretically have to travel at about [300 mph] to cover our move, while rolling at 250 fps, to capture the 1 1/2-second event and spread it over 30 seconds of screen time. So instead of merely circling the event, we were dolly[ing] by and through the event — even passing through half of a police car and the wall of a coffee shop — as cars and S.W.A.T. officers are thrown into the air, often right up and over the [virtual] camera [dolly[ing] past]."

Executing such a sequence

Opposite page: In this shot from *Swordfish*, a police car is hurled through the air by a massive detonation. The filmmakers photographed the blast's effect on various visual elements in individual passes accomplished with the Multicam array. **This page:** Because the shooting of each individual pass took longer than originally expected, several of the background plates — including the all-important explosion plate — wound up being shot in less-than-ideal light conditions.

The Frozen Moment



This high and wide view of a portion of the intersection illustrates the immense undertaking required to pull off the sequence. An elaborate truss network (partially seen to the left and center of frame) was erected to enable 12 to 15 stuntmen to be simultaneously ripped back from their footings. "[Visual-effects supervisor] Boyd Shermis and I agreed that we wouldn't be able to remove all of our gear from certain passes," Cameron reveals. "Fortunately, with elements like stuntmen and cars flying, he was able to pull matts successfully."

demanded extensive planning and preparation by all departments in order to accurately predict the needs of the lighting, stunt, physical-effects and visual-effects departments. With well over two dozen pieces of action occurring within the brief shot, the timing of each individual element had to be pinpointed down to the split second. "We wanted to stay true to the fact this was an explosion, so whatever took place during and after the explosion had to be realistic," Cameron notes. "To plot things out in the most effective way, we first designed the shot with a lipstick camera and a small model. Then [visual-effects supervisor] Boyd Shermis did a previsualization based on the lipstick camera tape. Working from that pre-vis, Boyd collaborated with Mike Meinardus, the special-effects coordinator, and Dan Bradley, the stunt coordinator, to plan out the timing of the various events down to hundredths of a second. The level of

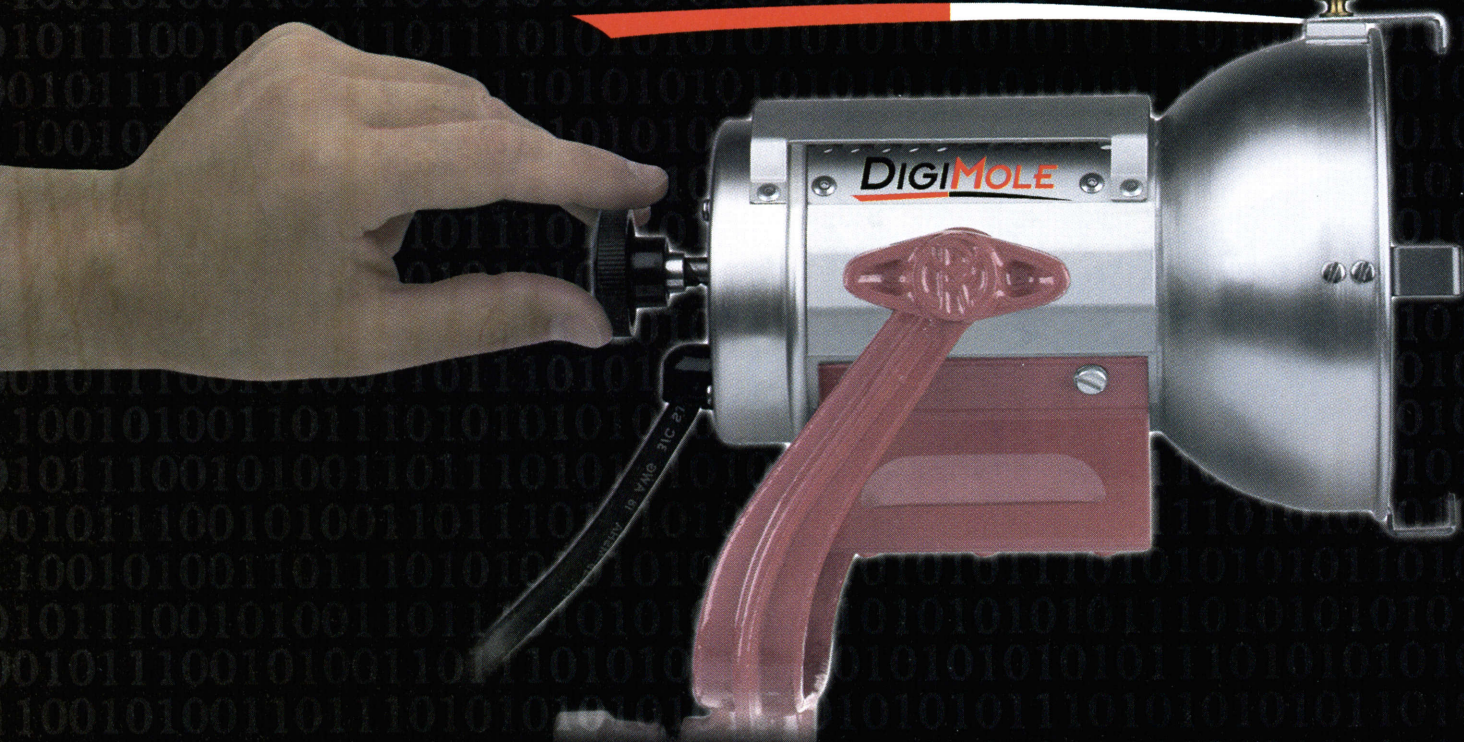
precision required was just amazing. If you looked at the previsualization, you'd see that if a stunt man left the ground just two-hundredths of a second late, we would have already passed him [in our move]. Creating this whole event was kind of like taking a magic trick and showing it in slow motion. It had to be incredibly precise and realistic, because otherwise people would see right through it."

Jim Gill, the owner of Reel Efx, Inc. of North Hollywood, California, explains, "The stunt people and the effects people had a logic controller that they could program with the sequences to fire their effects and stunts, as well as a [triggering] pulse to fire our camera array as if it were essentially another stunt event in their sequence. We also had a spreadsheet that mapped out the camera number and specified which thousandth of a second to fire it in order to capture the right moment for each

element. [For a pass of a stuntman being yanked back,] each stuntman had to be launched with his cables tight before our rig could be fired. For instance, if a stuntman was intended to fly over Camera #82, we knew that Camera #82 needed to fire 8.3 seconds into the sequence."

Given the level of complexity involved in the sequence, it became readily apparent that shooting the scene "live" in one take was impossible to choreograph to such minute timing. It was therefore determined that the shot should be split up into several separate passes that would be composited later. "In talking to prospective users of our system," Gill adds, "our first question is, 'How much screen time do you want to create?' We'll then take the number of frames that that amount of screen time would require and basically put a [still] camera in place of each [frame's perspective]. So if you have a 24-frame shot, we'll shoot with 24

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The Frozen Moment



In order to effect contrast amid the overcast weather, a 40' by 80' solid was suspended from a construction crane (top of frame left), while two 15-by-6K BeeBee lights added sunlight-motivated edging to the stunt performers being filmed.

cameras in the array. From there, we look at the subject that you're shooting and begin to determine the shutter speed and the frame rate. Both of those factors are independent of each other; for example, you can shoot one-minute exposures and have a frame rate of a thousand frames a second.

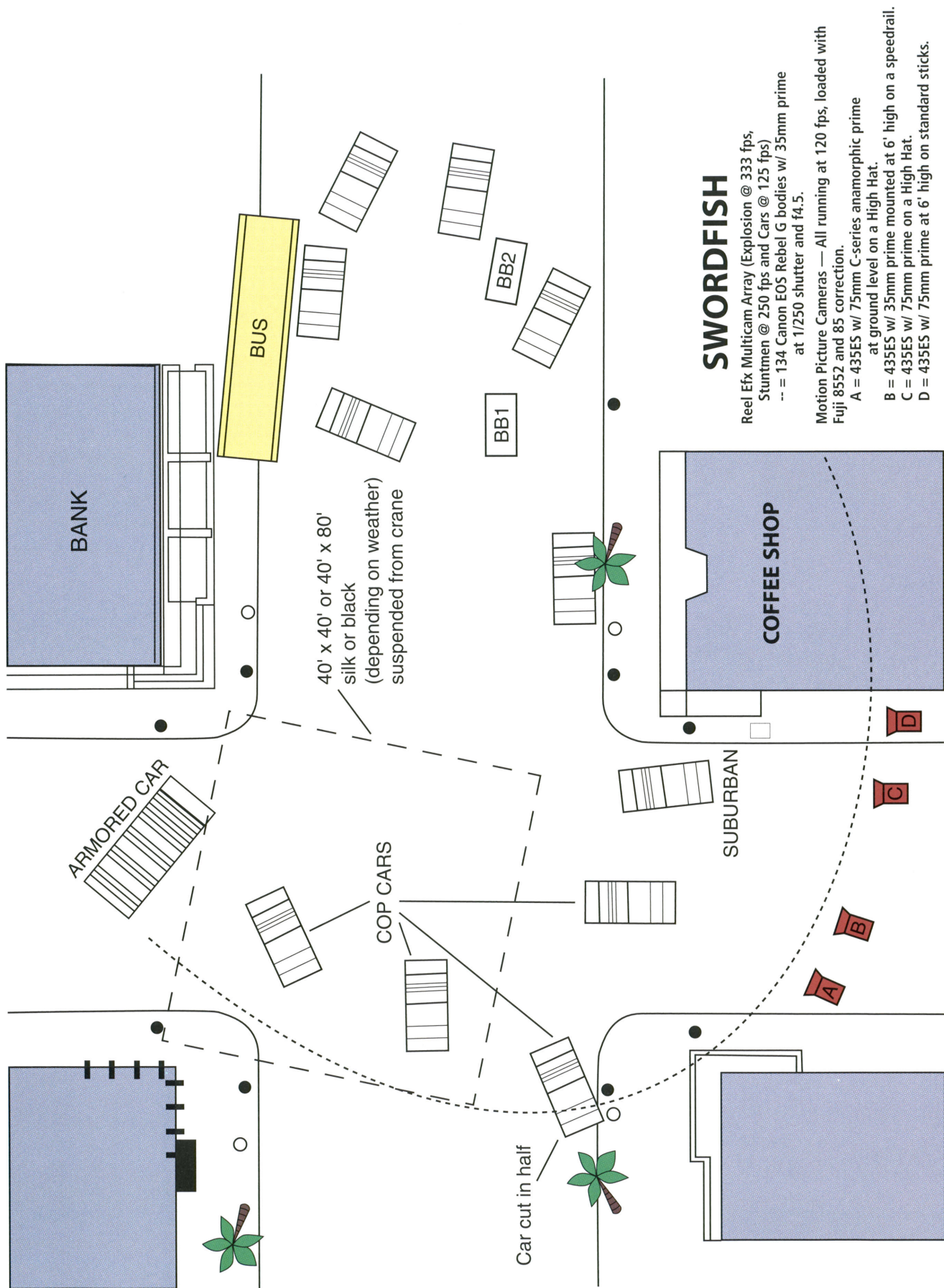
"For the *Swordfish* shoot, Boyd and the filmmakers had done tests to determine the frame rates at which they wanted to shoot each event, as well as the necessary timing of each element. Given that information, we had 134 [Canon EOS still cameras fitted with 35mm prime lenses] covering a 200-degree arc for the exterior sequence, and another 69 cameras for the interior of the

coffee shop (see diagram on facing page). What you'll see onscreen is carefully timed and staged so that you'll see the explosion and its shock wave advancing toward the camera [at 1000 fps]. The cars' windows are then shattered and holes are shredded into the side of them [from the ball bearings] as stuntmen fly past the lens. We then go inside the coffee shop, where you see all of the display cases breaking."

A paramount concern for any prospective user of a camera-array system is the added difficulty of lighting for what potentially may be a 360-degree shot. "Lighting for the camera array is one of the things that we warn people about," notes Gill. "Early on in our work with the

camera-array system, we did this shot that involved a bunch of soccer players kicking a ball in the rain at night. The crew set up a big rain tower and made a nice shower, but the poor guy responsible for lighting the scene had to contend with the idea of backlighting the rain for a 360-degree shot. Well, of course, you *can't* — you really have to pick a sweet spot in the move and light for that, since there's no way you can light the shot nicely from all of the different camera angles. It would just be [360 degrees] of flat lighting."

Once the *Swordfish* team had worked out the path of the array and the total number of cameras — which in turn determined the final effective frame rate of the shot —



The Frozen Moment

they broke the shot down into the primary elements that needed to be photographed. This list included background plates, the explosion itself, more than a dozen stuntmen being thrown back by the blast, and cars that needed to be torn to shreds and hurled through the air. "One of the preliminary issues raised during scouting was the orientation of the location [in Ventura, California] in relation to the light," Cameron

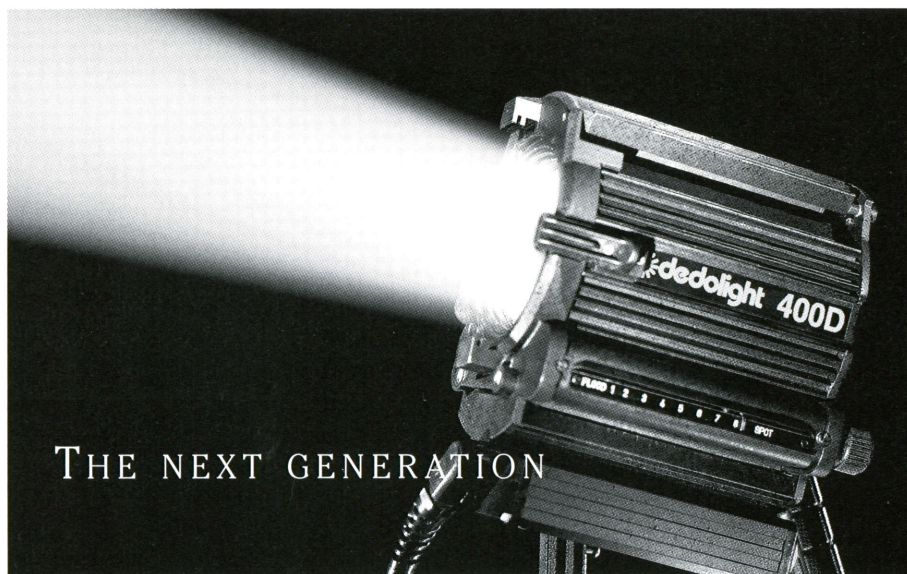
reveals. "Ideally, we planned to shoot all of the background plates with perfect backlit sun; while trying to achieve that goal, however, I had to shoot the first three-quarters of the day with almost frontal light and sidelight, which we had to manipulate so that it would resemble backlight. Much like one would approach a normal day exterior, where you'd try to cheat people into backlight, we planned on having each element of

the scene in backlight all the time while capturing our various perspectives with the camera array — which effectively involved a move of more than 200 degrees."

To accomplish this ambitious lighting cheat, Cameron, the 1st AD and the effects and stunt teams hashed out the scheduling of each department's needs while plotting out a way to pull the sequence off. "The approach we came up with was to break the shot down into thirds," Cameron details. "The first two sections of the shot were out in the intersection, which we planned to shoot in one day; the interior of the coffee shop would then be done on a second day. On the day when we went to shoot the first two sections, though, the weather could not have been less cooperative. We actually began with the second half of the sequence for the light, doing passes on the stuntmen flying back. That entailed shooting 10 or 15 passes just of the stuntmen, one by one. Given the rainy, overcast weather, though, I had to emulate the backlight ideal as much as possible.

"In the intersection," elaborates Cameron, "we used a crane to hang a 40-by-80 that we had built with quarter gridcloth, as well as blacks that we could bring in and out as the sun changed. In addition to the overhead light-control rig, we had two 15-by-6K BeeBee Lights and some Xenons to create one direction of 'sunlight.' However, on the first day it became immediately apparent that we would be fabricating every element because of the weather. We had intended to shoot the first section within a three-hour window, but that wasn't realistic because we had also planned to ratchet seven stuntmen into the air at once. By the time we got there to shoot the scene, though, we wound up ratcheting the stuntmen one by one, and each of those passes was pretty time-consuming in and of itself. You have to test the firing of the cameras, get

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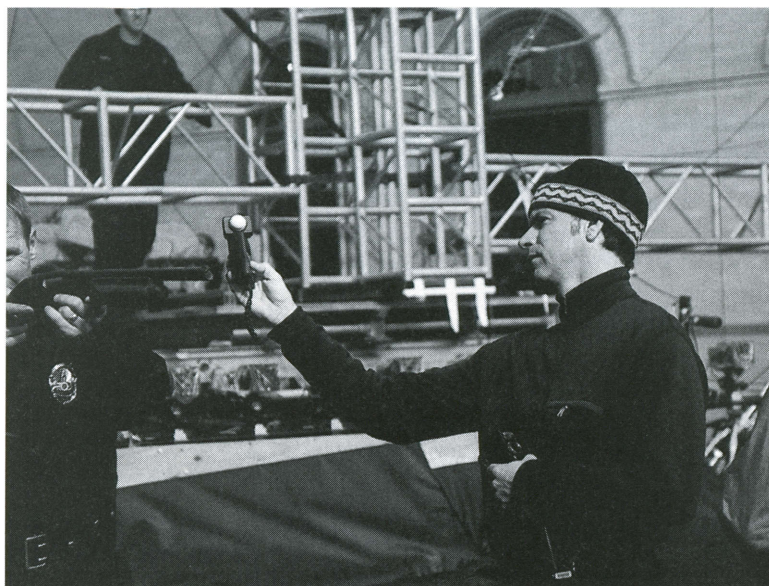


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The Frozen Moment

Cameron takes his umpteenth meter reading amid the constantly fluctuating light conditions that played havoc on the production during the demanding still-array shoot. "The frustrating thing for me was that the [ambient] light was so different from the first take to the last over the three days we shot," says Cameron. "I had to adjust my entire lighting approach, from emulating constant backlight with the aid of the sun to creating that same feel entirely through lighting."



all of the stunt people ready, do the shot, and then go back and make sure that all of the cameras fired correctly and there were no technical problems. Only then are you ready to

harness the next stuntperson."

In lighting the stuntmen and car elements, Cameron sought to "control the existing light and then edge the [various elements], emulat-

ing one direction of sunlight," he says. "It was extremely frustrating because it was one of those days where the conditions varied. At one moment, the sun would be so bright that we could barely tent in the performers to get an edgelight; then it would get dark and we'd have to fly in our overhead silk with the stuntmen's rigging, which was somewhat difficult to maneuver. Half of the time, the two BeeBee lights could barely put an edge on the performers, and during the other half of the day, they were way too overpowering. You can't shoot a shot like this for a week, so we had to make do with the pressure and lack of time. What started out as a very well-planned, scientific process came down to the most basic, raw elements you can face as a cinematographer. Over the course of the three days it took to do the sequence, we got hit with every



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possible weather condition. I'd have to say that the hardest aspect of this shot was that the condition of [natural] light was so different from the first take to the last."

However, by placing his trust in the still-array's motion-control-like performance over multiple takes — as well as the visual-effects department's ability to pull difference mattes from the varied footage — Cameron could make calculated photographic cheats of certain visual elements. For instance, during takes of just the stuntmen, a fair amount of equipment could be left in-shot, because only the stunt actor's movements would be extracted from that particular element. "Naturally, the biggest challenge, aside from the weather, was getting the equipment out of the way for the background plates and shooting those plates at the right time. Of course, with all of

the weather problems we had, only the background plates in the first of the shot's three sections were done in the correct lighting conditions. I had to light all of the other background plates as best as I could with the two BeeBee Lights. I even shot some plates when we had totally lost the light. In those instances, I would light surfaces of the buildings so that when the effects team pulled that section of that plate, they could at least use the light skipping off the buildings as a reference.

"It's one thing to show up on a film of this size and execute a certain number of setups," Cameron concludes, "but at the end of the day you know what you have, and the next day's dailies just confirm it. In this case, what we thought was a perfectly timed element might not prove to be perfectly timed later during compositing. It's not a

process I'd recommend for every movie, that's for sure. However, it was great working with Reel Efx, because they also wanted to take this type of shot to the next level. I'm sure they've been beating the hell out of the same camera move over and over for a couple of years now, so engineering this sequence — a pipe-dolly move that goes up and down in elevation and through cars and walls — was a real challenge for them as well. With all of the technology we now have in the film industry, we've reached a very high level of visual standards; on this project, though, we've taken one of the oldest photographic technologies — still cameras — and worked with ideas that hark back to the work that Eadward Muybridge did with those stills of a horse trotting along."

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Women in Love

The atmospheric *Aimée and Jaguar* explores an unconventional romance set amid the strife of World War II.

by Rochelle Winters

Unit Photography by Jürgen Olczyk



Photos courtesy of Zeitgeist Films.

Based on the best-selling novel of the same name, *Aimée and Jaguar* tells the true story of a World War II romance between Felice Schragenheim (Maria Schrader), a Jewish woman passing as an Aryan, and Lilly Wust (Juliane Köhler), an unfulfilled German housewife and mother of four. The women are drawn together in Berlin during the last gasps of cabaret culture, at the height of the Allied air raids and Nazi purges. They become consumed by their love despite all reason, which eventually leads to disaster.

Aimée and Jaguar was Germany's official selection for last year's Academy Awards and won two Berlin Film Festival Silver Bears; it was released in the United States last August. The film was directed by Max Färberböck, a German television director making his theatrical debut, and shot by Tony Imi, BSC, who made his name a bit more than three decades ago with the groundbreaking BBC film *Cathy Come Home*, directed by Ken Loach.

Imi trained behind the camera on the BBC's influential *Wednesday Play* series, using the early light-weight Eclairs and Arriflexes to film mid-Sixties England in all of its nitty-gritty detail. His first feature film was *Inadmissible Evidence* (1968), directed by Anthony Page, and he went on to shoot a variety of projects for the cinema, television and corporate advertisers. Among Imi's more than 75 feature credits are *International Velvet*, *The Slipper and the Rose*, *Enemy Mine* and *The Sunshine Boys*.

Television has continued to bring Imi his greatest recognition. He earned a BAFTA nomination for his work on the critically acclaimed miniseries *Nicholas Nickleby* and an ASC Award nomination for the miniseries *Scarlett* (see AC May '95). He has worked on three projects in Germany during his career, and those experiences helped lead to his



selection for *Aimée and Jaguar*. The film was shot on location in Germany and Poland, and it features an entirely German cast and crew except for Imi and his team.

According to Imi, Färberböck is a "very strong visualist who knew exactly what he wanted" and communicated his ideas clearly. Although the director didn't storyboard the film, Imi says, "he knew what mood he was after, what rhythm, and how the footage would cut together." Färberböck, who co-wrote the screenplay, held extensive rehearsals before each scene to develop the right atmosphere and feeling.

Although shooting off-the-cuff is Imi's strong suit (he describes it as a knowledge that comes through his body once the camera is in hand), the language divide spawned a creative chasm. For Imi to react instinctively to what unfolded before him, he had to understand the subtext, and the English translation

was just not enough. "I had to go by the actresses' body movements, and I talked to them when I didn't know the deeper reasons for their words and actions," Imi says. "I'd ask them, 'When you say this, what does it mean? When you move over there, why?' These things certainly helped in terms of the way I lit a scene, the lenses I chose, my camera angles and camera moves. In the beginning, Färberböck wanted to be able to explain things in German, and unfortunately, my German is not very good. But he and most of the crew spoke excellent English, and it all became much easier after a few days. We were able to refer back to looks we had established in our first scenes and carry on from there. We worked very well together, and I think we achieved a high percentage of what we wanted, but we didn't get it all."

To prepare for the film, Imi says he and Färberböck studied documentary photographs and

Opposite page: Lilly, a.k.a. "Aimée" (Juliane Köhler, right), embraces her lover Felice, or "Jaguar" (Maria Schrader), during a tender moment together. This page: Erika (Desiree Nick) teases Günther Wust (Detlev W. Buck) at a New Year's Eve celebration as his wife Lilly watches in awe. The actors' keylight was provided by a linen China ball (housing a 500-watt lamp wired to a dimmer) wrapped in a black skirt.

Women in Love

A pair of female revelers, Klärchen (Heike Makatsch, left) and Ilse (Johanna Wokalek), awaken after sleeping off their amatory exertions on New Year's Eve.



movies to “get a feel for the dust, the bombing and the terror of the times.” Although Imi was barely a toddler during the war, he had his own archive of memories and experiences to tap. “I went through a similar situation, albeit on the other side,” the cinematographer explains. “My family was bombed out twice; I remember seeing bodies in the streets, and I played in piles of rubble for years after the war ended.”

Because *Aimée and Jaguar* is, in a way, “the story of everyday life going on — of kids eating and playing, of relationships developing despite the conflict around them — we wanted the film to have an everyday look that was true to the period,” says Imi. “It was a very dark time: there was very little electricity; the lamp bulbs were very low-wattage; and food and clothing were in short supply. We used as little lighting as possible throughout the film to make it look natural and real.”

Imi adhered closely to this true-to-life aesthetic and mined its physical and metaphorical implica-

tions. He gave the darkness life, using it to build up fear of the dangers that lurked in the corners and the horrors being inflicted in the backgrounds. Imi also used shadows to convey the perilous nature of Felice’s seduction of Lilly, and to symbolize the risks they are taking as they embark upon their affair.

If the cinematographer had been willing to eschew authenticity, one central scene in *Aimée and Jaguar*, Lilly’s midnight birthday ball, would have called for elaborate, high-key lighting. Thrown by Felice and her band of underground lesbian friends, the party is staged like a Marlene Dietrich movie, amid an ambience of decadent splendor and ambiguity. It is a portentous moment in the film, in which the complexities of Felice’s and Lilly’s Eros, their personalities and relationships, and the historical period all come to the fore. Despite the scene’s celebratory backdrop, however, Imi adhered to his Spartan style, illuminating only the characters’ faces and leaving pools of dark-

ness around them.

Lilly’s party was filmed on location in a former communist club in Berlin. Imi shot with Eastman Kodak Vision 200T 5274, rated at 400 ASA and printed down. He used the same film and exposure throughout *Aimée and Jaguar* to achieve a consistently dark, underexposed look.

Imi’s camera of choice was a Moviecam Compact, fitted with Zeiss primes and short and long Angenieux zooms. He shot the film in the standard 1.85:1 format, lit mainly to a T2.8, but for Lilly’s party he kept his fill level below his average of T1.4, setting it around T1 or T1.2. He kept the scene’s filtration simple (as he did throughout the movie), using just a hint of diffusion — a ⅛ Tiffen Black ProMist to “bring out the dark areas without flattening them out. I like to shoot with a bit of stop on the lens to get punch and sharpness. I am not a fan of the ‘sharp eyes and soft nose’ effect, which would have been particularly unnatural for this film. At a stop of T2.8, I could control the light better,

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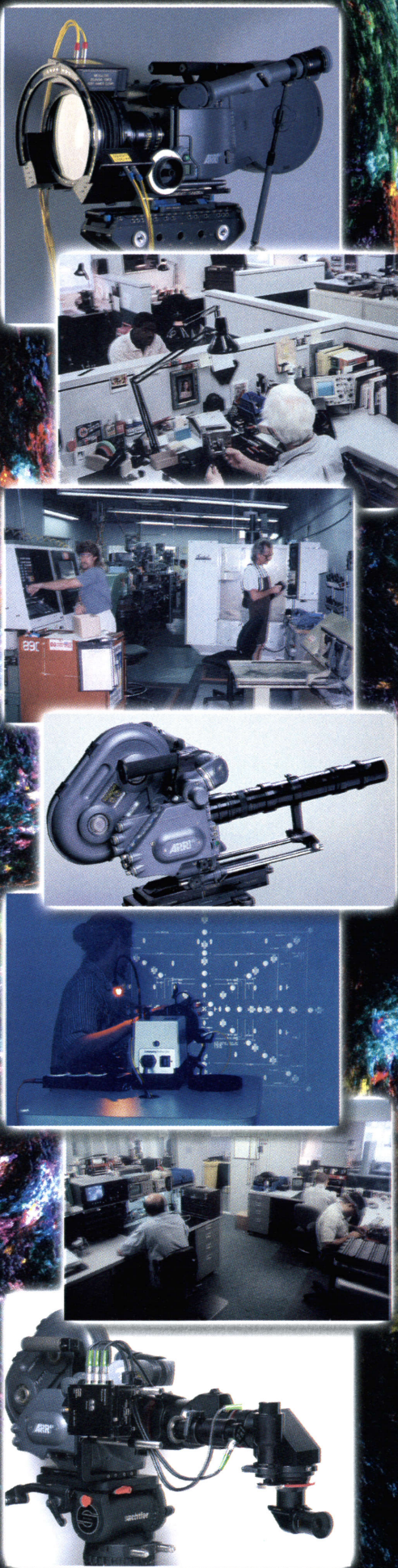
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Women in Love

Lilly and Felice celebrate the latter's birthday with their underground friends. The lighting scheme for this scene is illustrated in the diagram on the facing page.

especially in the dark areas, and maintain a realistic look."

It fell largely to costume designer Barbara Baum and makeup artist Gerlinde Kunz to provide the party scene's festive atmosphere, and Imi worked closely with both of them to select colors and shapes that would complement his work. On the eve of her birthday, Lilly dresses in a

says. "The gaffer bought this building material called Depron; we made it into a curved box and aimed a light through it. That technique softened the light and made it shine around Lilly's [entire] face, rather than just from one direction. The Depron was 2mm thick, and we aimed either a 1K or a 2K unit through it, depending on the situation. We lost a lot of stop, but

Felice, Ilse and all of their friends were illuminated mainly with two 2Ks suspended from each end of a "goalpost" that Imi's crew erected in the center of the room. The 2Ks were softened with Lee 250 diffusion and directed at a 45-degree angle towards Felice's and Ilse's faces. To concentrate the keylights on the characters rather than the location, Imi



luxurious and luminous blue gown, in contrast to the neutral creams and grays she wears throughout most of the film; Felice, on the other hand, is dressed in a black top hat and tails. Together, the pair emerge in clear contrast to the reds and browns of their muted surroundings.

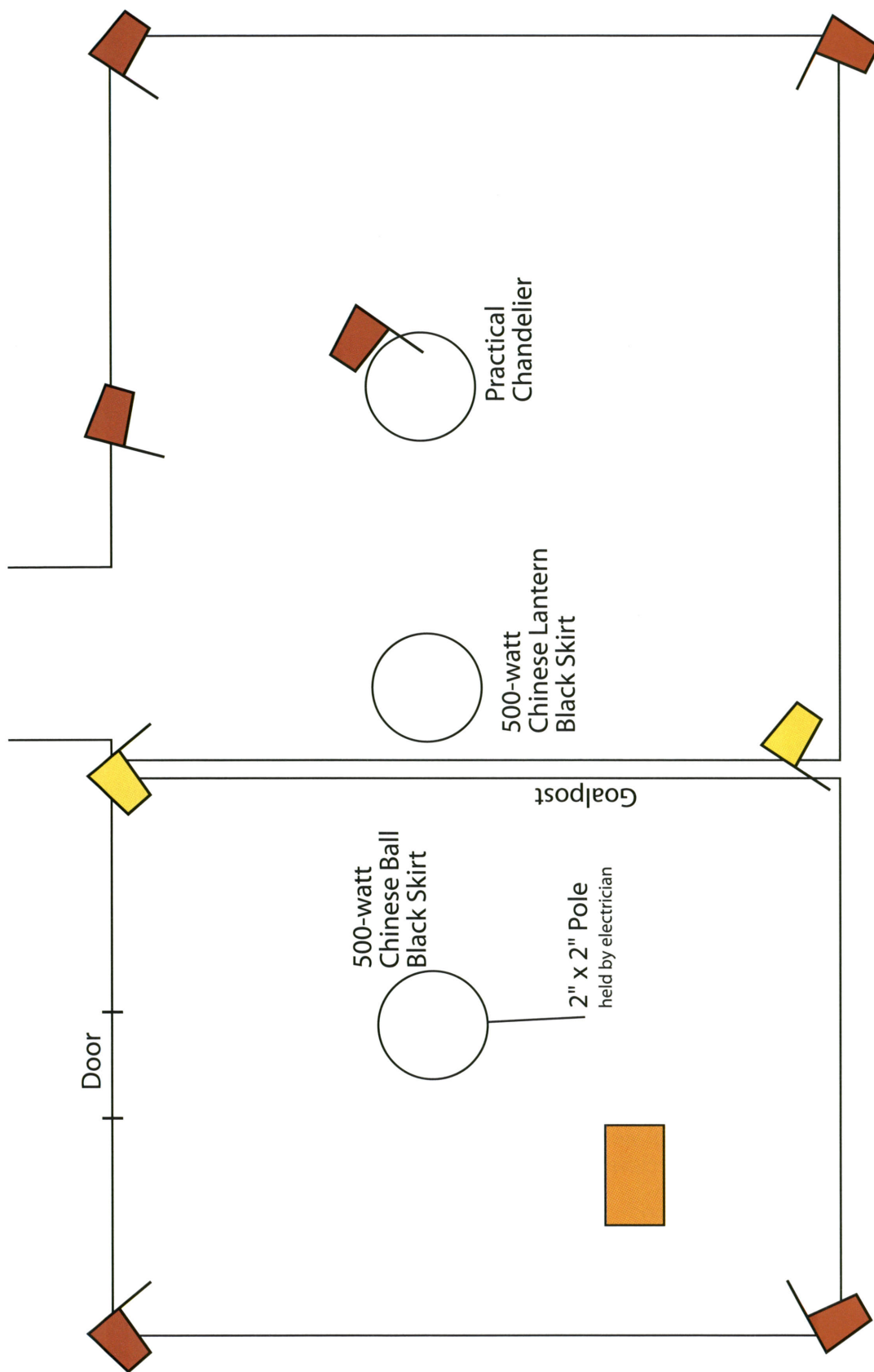
For most of the film's early scenes, Imi cast Lilly in ordinary, high-contrast light, but during the latter half of the film, including the birthday celebration, he filmed actress Kohler in an all-enveloping light that made her glow. "Juliane had luminescent skin tones; she was very pale, and the camera loved her," Imi

what did come out was soft, round and lovely."

As the scene begins, Lilly appears in all her splendor, only to observe Felice across the room kissing her old girlfriend Ilse (Johanna Wokalek). Simultaneously radiant and distraught, Lilly is lit with Imi's tailor-made softbox, which was wrapped in ¼ CTO for added warmth and placed below her on the floor. Inside was a 2K, dialed down with a dimmer. To animate Lilly's eyes, Imi had a Dedolight clipped to the camera; this unit was also wired to a dimmer, which was set to its lowest level. The lens was a 50mm.

trimmed them with barn doors and hung flags on the top. "The room itself was quite narrow; it was only 9 feet wide, and we had two pole cats stretched from floor to ceiling and another one across, which held the lamps," says Imi. "The poles and stands were metal, and we painted them to match the walls so that they would be hidden in the dark areas of the picture."

The fill light for Felice and the women around her came from a Chinese lantern with a 500-watt lamp, set on a stand near the middle of the goalpost. Imi details, "The lantern we used was made out of



AIMEE & JAGUAR

KEY	
	2K with Lee 250 Diffusion
	300-watt Lamp with 1/4 CTO
	Handmade Softbox

Women in Love

Felice stifles Lilly's emotional outburst so the rest of the household won't hear.



unbleached linen, rather than the natural-color paper you normally see. It produced a very soft light all around, which is exactly what I wanted. There was a black skirt down

the sides to take the light off the walls and concentrate it on the ladies and the floor."

Backlight was provided by 300-watt lamps covered with 1/4

CTO, which were hung from a practical chandelier and suspended from each corner of the room and along one wall. Dedolights also were placed on stands here and there to bring out the women's hair, among other details.

When a confused and disappointed Lilly disappears out the door, one of Felice's friends — the evening's hostess — crosses the room to find her. As she walks from one end to the other, with her cigarette holder raised proudly, she is lit first by the Chinese lantern and then by the 2Ks. Imi explains, "Sometimes the 2Ks were the key lights, and at other times the Chinese lantern and the softbox [served that purpose]. We had all of our lights on dimmers so that the electricians could bring them up and down easily and turn them from a key light to a fill, depending on our needs."

When the hostess leads a

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reluctant Lilly back into the festivities, our heroine no longer knows why she is there or how to act. To communicate Lilly's inner distress, Imi photographed her with a slightly wide-angle lens — a 25mm — so that she disappears into the crowd of women. Across the room, Felice's face expresses her own shifting emotions, a mixture of bravado and vulnerability. Imi shot Felice with a long lens to lift her out of the group and underscore her personal force. "That's something I do often, but in a subconscious way," Imi explains. "I choose lens size in relation to the background, where we are in the story and where we are in the location, and that choice is very much tied to the emotional state of the characters. I take a lot from the rehearsal and how it plays; my instincts take over from there, and they're not [based on] just the normal, practical considerations.

That's how I tend to work — without a lot of technical planning. It's instinct, rather than a technical play."

At this point in the scene, a linen China ball serves as Lilly's keylight. This was wrapped with a black skirt and housed a 500-watt lamp wired to a dimmer. Imi had the ball suspended from a 2" x 2" wooden pole held by an electrician. The softbox was moved to the side and dampened down to a fill. In addition, one of the 2Ks was redirected to spill slightly onto Lilly; this unit was covered with a cosmetic apricot gel to create a subtle, romantic look.

In the next moment, Felice crosses the room, lifts Lilly's champagne glass out of her hands and pulls her from the crowd for a dramatic dance. The camera, on a dolly, follows the women's moves (as did the electrician carrying the Chinese ball). Imi and the gaffer

operated the ball and lightbox dimmers to form a consistently soft light. All in all, it was a simple and extremely flexible lighting setup that captured the intricate emotions of the daring and decadent evening.

Imi concludes, "I don't normally analyze my methods. I'm quite instinctive about my lighting and camerawork, and you'll find that the majority of other cinematographers are as well — unless they're shooting a really big picture on which there is time to storyboard, to analyze things and to try and get this [piece of equipment] and that. Nine times out of 10, though, you are presented with a situation on location and say to yourself, 'How am I going to light this when we're seeing the whole room?' You don't have the control that you have in the studios, so you have to adapt to the location and think on your feet." ■

On Billy's Opening Film for the Oscar telecast, there is, literally, no tomorrow. "You've got to fully trust the camera and lenses. Birns & Sawyer not only has the good stuff, like the Cooke S4 primes, but they are meticulous about how each of them looks every time they go out."

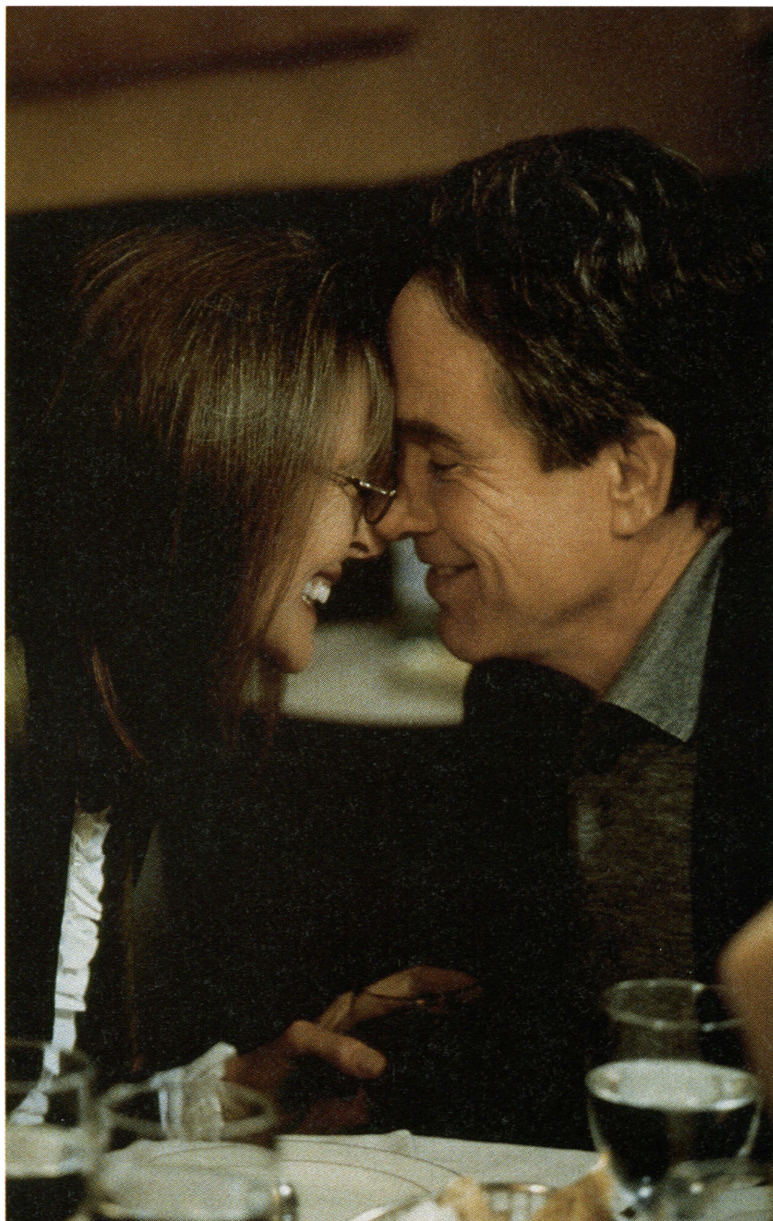
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An Enlightening Introduction



Veteran cinematographer William A. Fraker, ASC illuminates a group of seasoned actors for a key scene in director Peter Chelsom's mid-life crisis comedy *Town and Country*.

by Bob Fisher

Unit Photography by David James, SMPSP and Andrew Cooper, SMPSP

Peter Chelsom, director of *Town and Country*, remembers the day he first noticed William A. Fraker, ASC's camerawork — he was 13 years old, watching *Bullitt* in a London cinema. A few years ago, when a New Line executive suggested that the filmmaker talk to Fraker about *Town and Country*, Chelsom checked the cinematographer's credits and found that they included about a half dozen of his all-time favorite films. "I couldn't believe my good luck," he recalls.

Photos courtesy of New Line Cinema.

When you ask cinematographers about their most interesting lighting challenges, many of them talk about large scenes with big units and elaborate sets. Not Fraker. In an interview about *Looking for Mr. Goodbar* (1977), Fraker explained how he used dabs of light to make the audience feel darkness at seminal moments. In that film, Diane Keaton played a schoolteacher who picked up men in dark bars; Fraker typically keyed on her with six to eight footcandles in those darkened settings, and he selectively brushed bits of fill light into the background. He explained, "If you want true black, you have to expose the film to some light, so if we wanted a corner of the bar to go black, we used one to two footcandles in that area, and then had the lab print for the keylight. We got rich, black tones in the corners of the bars because the film had some exposure. If you don't do that, the areas you want to be black will start to go a bit milky." The result was that no one had to tell the audience that Keaton's character was putting herself in mortal danger — you saw it in her face and felt it in the darkness.

Just a little over 25 years later, Fraker has shot another film featuring Keaton, only this time she shares the marquee with Warren Beatty, Goldie Hawn, Andie MacDowell, Garry Shandling, Jenna Elfman and Charlton Heston. *Town and Country* is a romantic comedy based on a story crafted by Michael Laughlin and polished by Buck Henry. Chelsom was in the early stages of preproduction when the New Line executive suggested the meeting with Fraker; the director jumped at the idea. "Anytime you have a character-driven film, it is important to have a cinematographer like Bill by your side," says Chelsom. "He's great with actors. They trust him, and rightly so, because his images of them are like portraits. He gets beneath the surface and shows the audience the truth behind their eyes. Simply put, I've



never agreed with a cinematographer more and never had a better time working on a film."

The film's themes are friendship and love, and the ways in which happily married people can turn bliss into anguish. Rollicking humor serves as the vehicle for driving those points home. Keaton plays Ellie Stoddard, and Beatty plays her husband Porter, a celebrated New York architect. Hawn (Mona) and Shandling (Griffin) portray the other married pair. The couples are old friends who share a belated mid-life crisis that sends them on a journey with many unexpected twists and turns at locations that include a Paris café, New York City, and a Halloween party in Sun Valley, Idaho.

A Paris café scene introduces the main characters, who are seated around a table. Their dialogue is cheerful and animated, and the characters never get up from their chairs. The scene's ambience exudes Paris; the only significant movement comes from the camera, which tracks around the perimeter and pulls the audience into intimate close-ups of each character. The scene lasts for two to three minutes. "This scene is crucial because

it is the audience's first impression of the characters, and it provides insights into each of them," Fraker relates. "We wanted to make the audience participants in hearing their stories. We establish the setting, but the scene is mainly close-ups."

There are human factors that go into lighting a scene like this. Beatty, Keaton and Hawn have each directed films, and all of them had opinions that were bolstered by makeup artists and hairdressers. Put simply, all of the actors wanted to look good. That suited Chelsom, as long as the look was consistent with the story and true to the characters. "We gave each star his or her own keylight," Fraker explains matter-of-factly. "We wanted all of them to look and feel good about themselves, but we also had to make sure that the light was balanced so that they'd look like they were in the same place."

Fraker says the film's stars were willing to take what he and Chelsom had to offer, but there was a certain amount of competition among them. "Warren had the strongest opinions, but the others knew where they wanted to go and how they wanted to get there," Fraker says. "We

Opposite: Married couple Ellie (Diane Keaton) and Porter (Warren Beatty) enjoy an amusing tête-à-tête during dinner in a Paris café with their good friends Mona (Goldie Hawn) and Griffin (Garry Shandling). **This page:** After mid-life crises set in for the two couples, Mona discusses her concerns with Ellie.

An Enlightening Introduction



Town and Country introduces its main characters in a dinner sequence that features a 360-degree tracking shot around the table, which made lighting setups difficult.

Director of photography William A. Fraker, ASC also had to individually light four stars who are very aware of the type of lighting that makes them look their best.

shot hair and makeup tests with Diane and Goldie, and a smaller test with Warren. You don't shoot tests to find out what you can do, [but] what you *shouldn't* do. Once an actor or actress gets beyond 20 or 30, you generally have to light them differently."

The café scene was filmed on a stage at the Lowry Center in Los Angeles. Because the camera was going to cover 360 degrees, there was no way to hide lighting stands on the ground. All of the lighting came from lamps positioned on an overhead stanchion that could be raised or lowered. The scene was actually shot twice because of a slight change in the script. The first time the scene was shot, the filmmakers circled the table with one camera and shot additional coverage with a second camera, but Fraker says the results didn't quite capture the emotional energy they had envisioned.

The second time, Fraker suggested using a square table, which forced the camera to move more deliberately. He also relied solely on the moving camera, which made the lighting more precise. This time, the shot proved much more compelling. "Warren didn't want the light too high or the camera angle too low,"

Fraker says. "Diane told me, 'You know what I look like, and this is where I'm going to turn.' Goldie was easier to light; I had worked with her on *Protocol*, so I already knew her face. They were talking, laughing and having a marvelous time. The camera was moving, and we were shooting tight close-ups with their faces sometimes nearly filling the screen."

The grips built a platform that went around the table at ground level. The camera was on a free-wheeling crab dolly that was pushed by the dolly grip. Production designer Caroline Hanania provided a cheery and romantic set whose primary colors were yellow and brown, with a window in one area of the background. Fraker provided a subtle sheen by using an orange gel on the tungsten lamps aimed at the window. A bar featuring rows of sparkling glasses was lit so that the reflections seem to be motivated by light coming from different places. "Every light had a purpose," Fraker notes, "and we didn't allow any of them to spill onto anything else."

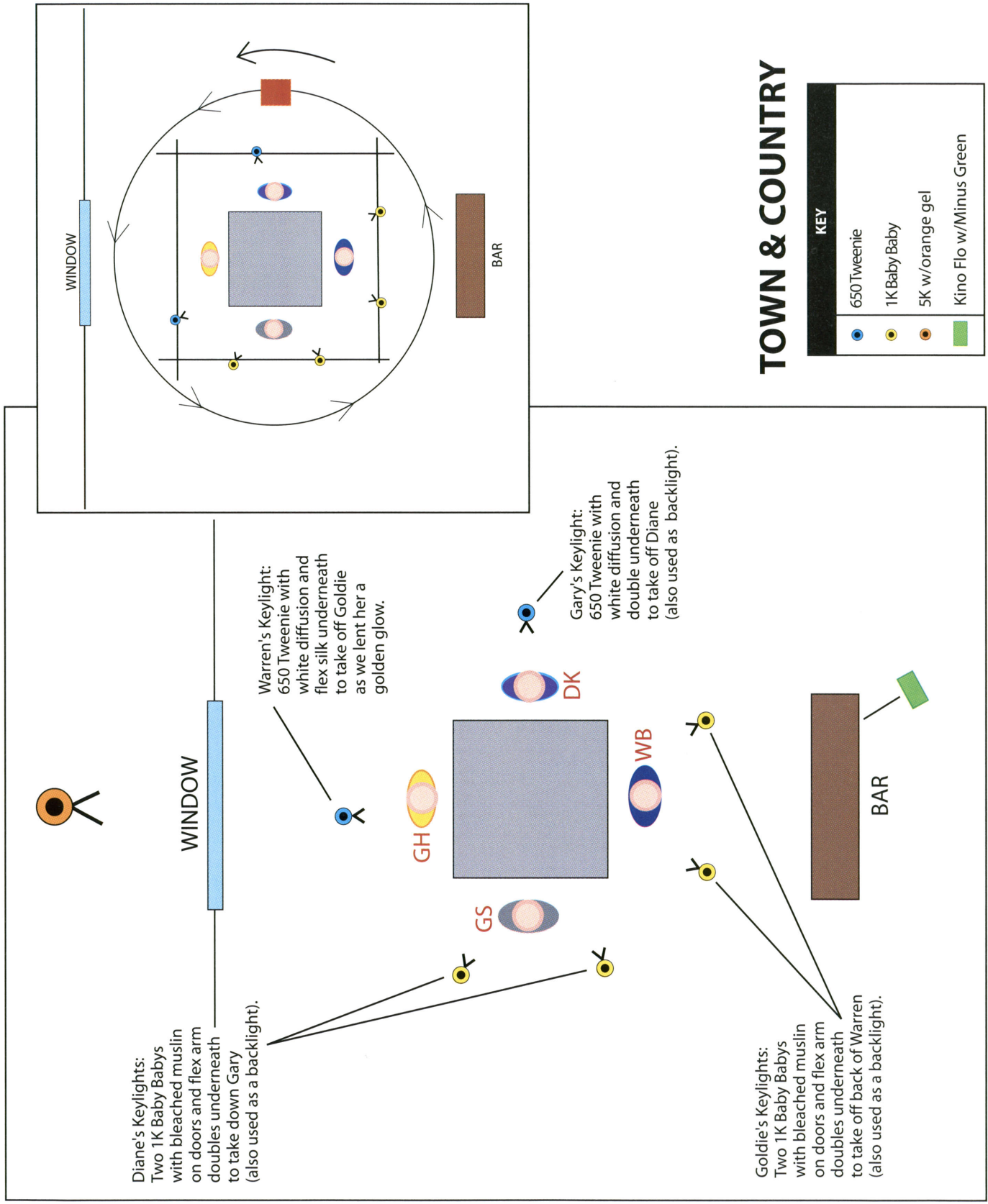
"Working with Doug Pentek, a gifted gaffer who understands the creative elements needed to achieve a desired effect, is really an advantage and a major plus in special photo-

graphic situations," he enthuses. "Also, we were lucky that we were working with a visual director, who gave us the time to set up and light such shots because he believed they were important for the story." He adds that there is no formula for lighting backgrounds in this type of setting; he did it by eye, and by understanding how the negative reacts to colors, light and lenses.

Town and Country was photographed with spherical lenses with the aperture hard-matted for a 1.66:1 aspect ratio, which is standard in Europe. This choice of format was stipulated in Chelsom's contract. "I love it," says Chelsom. "[A 1.66 frame] allows you to come in a bit closer on close-ups with longer lenses, and you are shooting full aperture."

For the café scene, Fraker used a Primo 75mm prime lens with no filtration. "I've never been more aware of how delicate the choice of lens length is, and how it can affect the audience," Chelsom says. "It made the close-ups of characters a bit sharper and the backgrounds a bit softer. It's not something that is necessarily evident to the audience, but it feels more romanticized." Fraker adds, "Peter is a romantic, and he appreciates that there is drama in comedy and comedy in drama. Our approach fit the characters as they were presented in the script."

Fraker shot *Town and Country* with Kodak Vision 320T 5277 film stock throughout the production, using it for both interiors and exteriors. Noting that the stock was relatively new at that time, the cinematographer says he chose it because its dynamic range gave him the freedom to move from brightly lit areas to darker areas without losing details in highlights or shadows. The images were also less contrasty; he maintains that the 320T closely approximates the way in which the eye sees things. There's no intrusive grain or moody contrast,



TOWN & COUNTRY

KEY	
	650 Tweenie
	1K Baby Baby
	5K w/orange gel
	Kino Flo w/Minus Green

An Enlightening Introduction

and the stock records bright and dark images without losing details.

All of the lights in the café were pre-set and controlled with a dimmer board. The direction, angle and intensity of light were choreographed with the movement of the camera and the actors' performances. There were warm gels on all of the lamps, and Fraker also used various combinations of silk diffusion and scrims. Regarding the

window in the background, Fraker notes that "you don't see outside, but you see colors bouncing into the window with the occasional suggestion of bright headlights moving by. There are also some musicians playing in the café, and we used a bit of nice, warm crosslight on them. The music was terrific, and it helped define the mood."

The dimmer board gave Chelsom and Fraker the flexibility

they needed to keylight the actors separately. Fraker says he used almost the same keylight on Shandling and Beatty. The light on Beatty was a little lower and more over the camera; with Shandling, the keylight sometimes came from a slightly more oblique angle.

Fraker believes that when audiences pay to see a movie projected on a big screen, they expect to be taken on a bigger-than-life journey with glamorous movie stars, but at the same time, they want to feel that the story is based in reality. In this case, he notes that it is important for the audience to believe that the opening scene really happens in a Paris café. Fraker says the art lies in finding and crafting the balance so that the transitions from character to character are seamless. "It's done by eye and by experience," he says. "I don't worry about exposure meters. I knew where the lamps had to be, how much diffusion we needed, and how hot or cold the light should be as we moved through the shot."

Fraker adds that he was working with an experienced gaffer and seasoned actors who always hit their marks. They knew why it was important to find the light he designed for them, even if they had to affect just a slight tilt in the angle of their heads. "I'm not a fanatic about motivating light," he says, "especially when we get into close-ups and I know that a face is going to fill most of a big screen in a dark theater. It doesn't make a bit of difference where the light is coming from once you move in close."

Fraker lauded Art Tostado and Ron Scott at CFI for helping him maintain consistency in colors and contrast. He is reluctant to list the lights, gels, silk and scrim diffusion he used on *Town and Country*, saying it is unlikely that anyone else would shoot the café scene exactly the same way. In fact, he says, if the same scene were shot on the same stage by 10 different cinematographers, each would probably do it differently. ■

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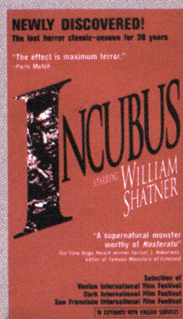
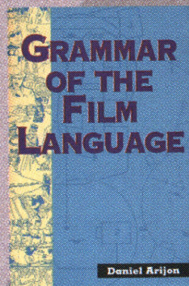
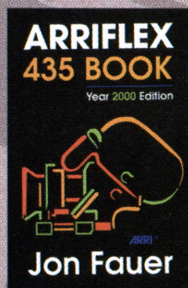
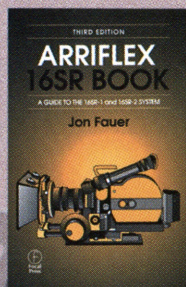
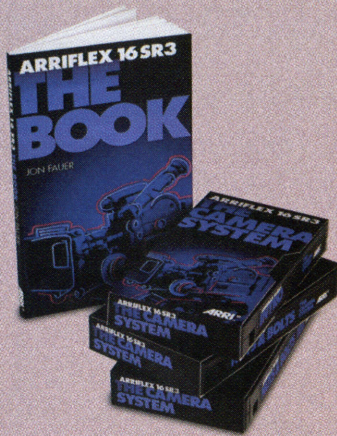
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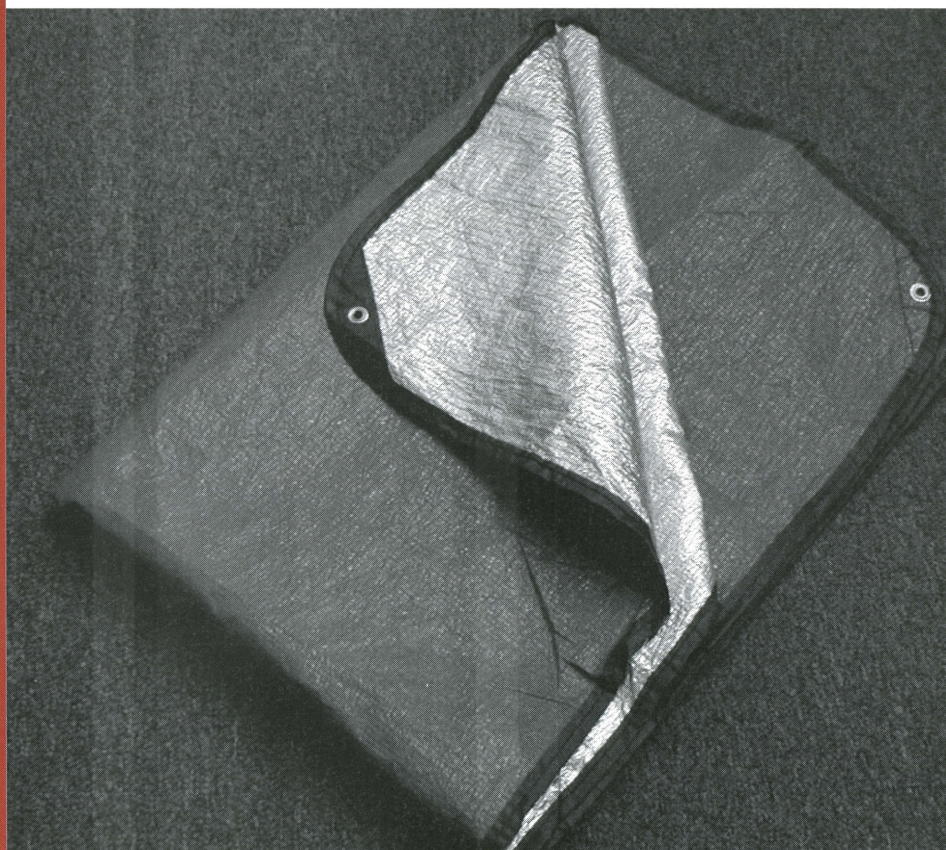


Using Reflectors: A Shortcut to Stylish Lighting

Stephen H. Burum, ASC offers some handy do-it-yourself solutions for cinematographers challenged by small budgets.

by Christopher Probst

Photography by Christopher Probst



For cinematographers, the need to craft and control images is as important as ever — particularly for those working in the emerging independent and digital-video feature markets. The shoot-it-as-is, run-and-gun mentality propagated by ardent promoters of the DV “revolution” only goes so far in the aid of good storytelling. Regardless of the size of the budget or crew, or the format in which it is shot, a film’s imagery can strengthen the written and performed script in ways that often exceed the expectations of the writer and director. Indeed, the craft of cinematography — the telling of stories with images — has been evolving since 1877, when a horse’s gallop was first captured in the famous series of stills by Eadweard Muybridge.

As veteran director of photography Stephen H. Burum, ASC points out, however, the art of honing imagery to suit the needs of a story needn’t make producers shriek

Photos courtesy of Christopher Probst.

or cinematographers sell their first-born children to pay for equipment and crews. “With filmmaking, you always see truck after truck loaded with everything you can think of,” Burum notes. “Having that level of resources is good, because we manufacture entertainment and we need to be able to work quickly and efficiently; but if you’re trying to make a small independent or DV movie, there are a lot of alternative materials you can use in place of several semis full of gear.”

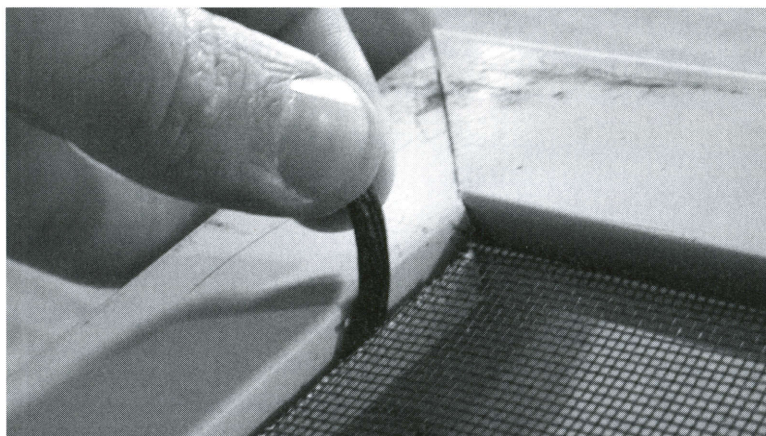
Foremost on Burum’s list of low-budget, image-making tactics is the effective utilization of the cheapest light source available: the sun. “The reason you need to have a big generator and large HMI lights for exteriors is so you can continue to work if you lose the sunlight; you can keep the light consistent so the audience won’t be distracted,” he explains. “Naturally, any photographer would only want to shoot from sunrise for about two or three hours, avoid shooting during the middle of the day, and then start shooting again two or three hours before sunset. That way, the light can always be perfect. If the light isn’t right — if you don’t have the right sunshine or the exact overcast conditions that you’re looking for — then you just don’t shoot. However, this is a business driven by money, so we simply can’t do that. To ensure that you can shoot consistent images all day long, a cinematographer often needs many tools to manipulate the light.

“One of the most effective tools we use every day in cinematography — reflectors — are very cost-effective. All sorts of reflectors have been utilized in the motion-picture business from the very beginning. In fact, even Renaissance painters used reflectors to help them light their subjects in a more pleasing manner.” (See sidebar on page 76.)

Augmenting available daylight with reflectors requires planning and staging according to the arc of the



Opposite page: Common in most assistants’ ditty bags, the “space blanket” makes a great dual-purpose reflector. Normally 6' x 6' in size, these blankets even come with corner-fastening grommets. While the silver side is particularly useful, one shouldn’t rule out the multitude of colors available on the opposite side. Blue and olive-green are especially handy in emulating cooler sky shadow and foliage bounce, respectively. Top: Although not the most robust frame in the world, this 7' x 5' screen door retails for under \$30. Middle: A removable O-ring holds the screen material in place, and also enables easy replacement with other materials and fabrics. Bottom: Additional densities of screen material can also be purchased in rolls for under \$2.



Using Reflectors: A Shortcut to Stylish Lighting

Prefabricated 90-degree PVC joints and union fittings (top photo) can also be obtained for mere tens of cents, while sections of PVC tubing in various lengths (bottom) can easily be used in the fabrication of low-budget frames.



sun throughout the day. Burum offers, "When the studios used to have their larger backlots, they oriented their streets so that they were built running north and south. As far back as the silent-film days, they'd always try to shoot toward the south, because that way they'd always have a consistent backlight and would be able to use reflectors to fill and model the actors' faces. Reflectors were positioned on the actors in exactly the same way you'd use lamps on a stage.

"You never want to plan your shoot for a whole day at a location that runs east or west, because you'll only have half a day before you're completely in shadow. If you have a

street running north and south, in the morning the west side of the street is lit and the east side is in shadow. If you choose to shoot in shadow, you'd start out in the morning shooting east. When the sun starts to flip over, you'd begin to turn around, shooting into the dead backlight; then, as the sun comes back around in the west, you'd shoot toward the west.

"In this manner, you can maintain a consistent look and map out your shots according to the direction in which you're shooting," Burum continues. "Also, you can plan to do all of your big wide shots early in the morning or later in the afternoon while the sun looks

wonderful. Then, while the sun is directly overhead and harsh, you can block it out and do all of your close-ups and medium shots. That's one way you can effectively use the middle of the day [when the light is not ideal] and still shoot under the burden of a schedule."

Burum stresses that reflecting daylight is often overlooked as a technique for illuminating day-interior scenes. "You don't always need lights in your interiors," he suggests. "You can often have windows with light coming through them. If you want to augment that light, you can use a few reflectors — such as mirrors if you want to get a sharp shaft of light and hard shadows, or a softer reflector like a silver, shiny board — angled outside to perhaps come in through a window off-camera. You can further refine the reflected light by putting up a bit of diffusion to soften it even more.

"On two of the films I shot, *Casualties of War* and *The Untouchables*, we built houses on location that were constructed so that the roofs could be removed, and I would then cover [the top] with muslin and use some neutral density on the windows. As a result, once we had the balance between the light outside and the toplight from the muslin, it didn't matter whether the sun was out — as the light changed, the balance between the two stayed the same. You don't have to adjust your lighting by taking off neutral density on windows and throwing scrims on your lights. With this method, all you have to do is change your f-stop. It works very efficiently."

Maximizing the sun's luminance by using reflectors as a source of light is an idea that only scratches the surface of Burum's approach to the craft. "Everybody wants to make pictures inexpensively and efficiently, but it's not the equipment that makes good photography; it's a person's mind. If you understand what the principles are, you can use what's

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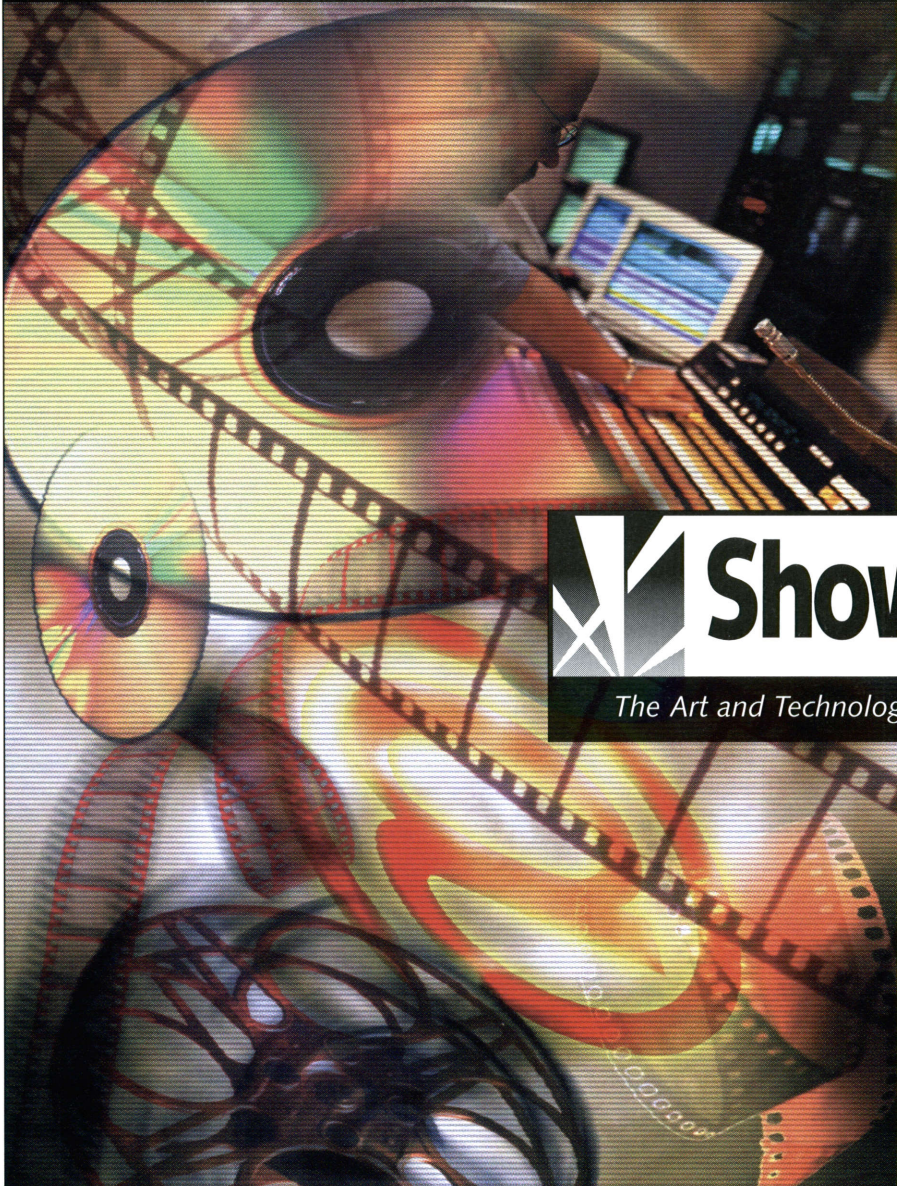
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A HISTORY OF **INGENUITY**

Part of the heritage of cinema is the tireless inventiveness of its practitioners. With few iron-clad rules dictating equipment and techniques, the film industry has evolved as a logistics and problem-solving pressure cooker, with roots reaching back to the Renaissance painters. “When doing still-life portraits, painters would often go outside and stretch muslin over their subjects to get soft light,” says Stephen H. Burum, ASC. “When photography first started in the 1830s and 1840s, they had studios with big, glass ceilings and walls that faced north, allowing them the same kind of consistent light; they would seat people there and take very long exposures. If they wanted to manipulate light, they used large, black panels, or white muslin that they could pull over the top or the sides to create different lighting effects. When the movie industry started up in the early 1900s, filmmakers basically borrowed from the same traditions.”

Burum points out that early filmmakers used either glass studios or studio sets that could turn on big Lazy Susans, enabling them to point the studios towards the sun. “The most famous of these was the one Thomas Edison built in New Jersey called The Black Maria. Also, filmmakers often built their sets on platforms so that they were shooting south, placing everything in back-light so that they could then put out reflectors to bring light back into the set to get an exposure.”

On these “stages,” early film practitioners experimented with an array of reflecting materials available at that time. “They’d get a piece of 4-by-8-foot plywood, paint it white, and lean it against a post to reflect light back at their scene,” Burum details. “They also used mirrors if

they wanted a harder light or needed more exposure. They soon found that big mirrors were too heavy to move around and tended to break easily, so they began using the ferrotype tin, which is basically a large piece of chrome.

“Ferrotypes were made in different sizes, so filmmakers would have them framed up to use as reflectors,” he continues. “However, sometimes the light they created was too hard, so they’d take a ball-peen hammer and bang them so that the light would be softer; they called those ‘dipples.’ The only problem with propping any of those reflectors on the ground was that the light was coming from down low, and in most situations that looks unnatural and is hard on the actor’s eyes. It was therefore decided that reflectors should be elevated, so crews built parallels and set the reflectors up higher, angling them to catch the sun.”

As cinema continued to advance and film sensitivities charged toward double-digit ASAs, the need for softer, subtler bounce and reflecting sources became apparent. “The early filmmakers then decided to take a big piece of muslin and other fabrics in frames and use those to reflect light,” says Burum. “Those frames were usually quite large, so they’d lean the frames against two poles. They eventually came up with a sort of paint-easel configuration to support the mirror and tin reflectors. Finally, the collapsible stands-and-yokes system we use today became standard.

“This is also why filmmakers came to California — there was plenty of sunshine most of the time!”

— Christopher Probst

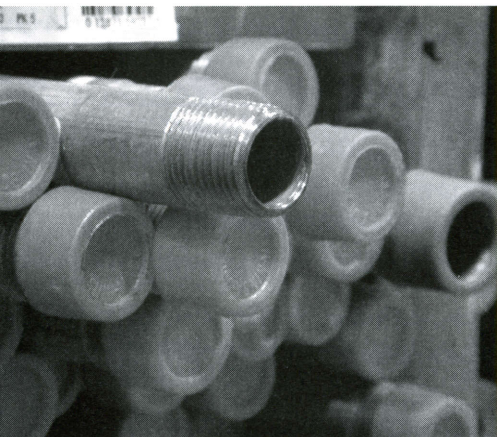
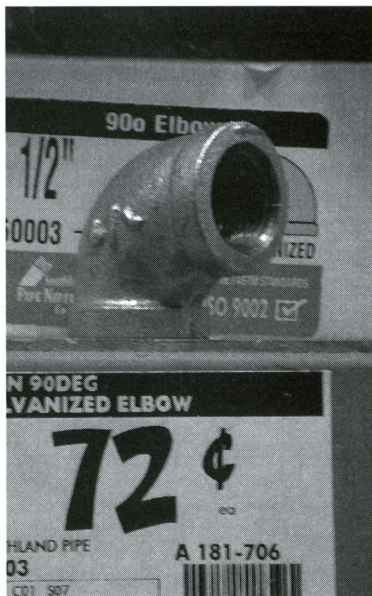
Using Reflectors: A Shortcut to Stylish Lighting

around you. The question I always try to address in articles for *AC* is: “What is the underlying principle?” Once you understand what that is, it’s up to your imagination to figure out how you can modify something that’s available to you. Where do you think all of the gear we use today came from in the first place? In the beginning, there were no companies like Matthews or Mole-Richardson!”

It’s often joked that everything in the film industry costs twice as much as its “real-world” equivalent. As with many sayings, there is some degree of truth behind the words. “You can buy and/or rent all of these wonderful frames, reflectors and stands from the equipment-rental houses, but you may not be able to afford them,” Burum says. “There are many substitute items you can find very inexpensively in a standard hardware store.

“One of the best materials to make frames with is electrical conduit. The pipes come in half-inch and three-quarter-inch sizes in lengths up to 10 feet, and you can get 90-degree elbow links so that you can fashion them into frames. You can also use plastic PVC plumbing tubes. They have 90-degree PVC corners as well, but PVC is a little flimsy. There are two ways to stiffen it up a bit. First, you can fill the tubes with spray foam, which makes the PVC very stiff. Just make sure you do it somewhere flat, because if the PVC is bent while it dries, the tube will stay bent. The other way is to put a wood dowel in it, just like they used to do when they made old aircraft; the crews drove a wooden dowel into the aluminum tubing, and the dowel made the tubing very strong while still keeping it very lightweight.”

In addition to fabricating hardware, Burum has discovered that many of the materials used in filming can also be found at local hardware and fabric stores. “A lot of people like to use Griffolyn in



Threaded 90-degree elbows (top photo) and electrical pipe conduit available in lengths up to 10 feet (bottom) can be used to create rigid bases for reflector frames, in sizes perfect for exterior filming.

frames as a bounce reflector," he says. "Griffolyn was originally developed for farmers in the Midwest to cover their haystacks, then somebody thought it might work for movies. Another popular material to use in frames is the expensive and wonderful gridcloth, which is essentially rip-stop nylon. You can go to any fabric store and ask for white rip-stop nylon; you'll have the same thing as gridcloth, only it will cost you half as much. Other useful fabrics include percale sheets, sail cloth, silk and taffeta. ➤

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Actor James Cromwell

Cromwell Eyes SoftSun

SoftSun lighting units are earning rave reviews on more and more sets — and not just from behind the camera.

Take actor James Cromwell. Whether playing a kindly farmer in *Babe* or a chillingly corrupt police captain in *LA Confidential*, Cromwell never fails to transform himself before the camera. But when working on the set, he says, the lights can sometimes be problematic.

“There are times when you have to look straight into an arc, he explains. I noticed that the SoftSun lights are much easier to look into than conventional lights of the same output. From a distance you can look almost directly into even the 50K SoftSun without discomfort.

When I asked the SoftSun designers about this, they explained the source of

the light (the arc plasma) was many, many times larger than conventional, round light sources like HMI and tungsten. It's that difference that minimizes the squint factor with SoftSun.

It's like when you gaze out a picture window you don't squint but the same amount of light pouring through a window the size of a postage stamp would make you duck away.

Especially in car scenes, when the lights are down low and full-on, it's tough not to squint. SoftSun on the hood of a car rig makes it much easier to maintain a natural expression. And since it dims so easily — without changing color characteristics — the gaffer can quickly adjust the brightness of the light to make it even more actor friendly.”

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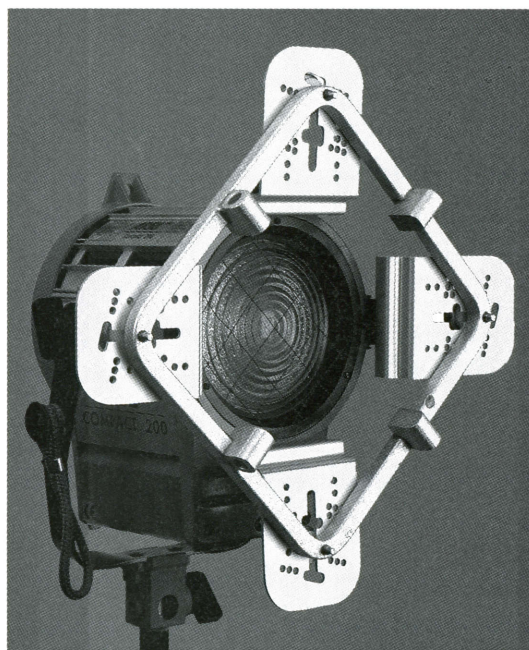
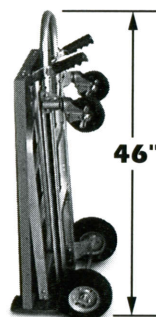
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Using Reflectors: A Shortcut to Stylish Lighting

"There are all sorts of ways to attach the material to frames," he continues. "You can put grommets around the edges, or use the little garter-snap-type fasteners that you can find at camping stores. You can also get space blankets [plastic material with one aluminized, reflective side] for \$13 at any camping store. So for less than \$25, you can make a great reflector."

Another material many cinematographers use for exterior light modification is scrim, also known as bobinet. "Scrim is very expensive, but your local home-builders store has a substitute that works terrifically — plastic window screen. It comes in very large widths because it often has to cover large sliding doors and such. Again, you can get some grommets or those garter-snap tie-offs at a camping store to tie the material to your frames."

For not-so-handy cinematographers, or those who are in a rush, Burum recommends whole, pre-fabricated windowscreens. "Those are nice because the frame is already built with plastic corners, and the plastic screen is held down with an O-ring that goes into a slot, so you can even change the material in the frame, perhaps putting in some of your cheap rip-stop nylon," he advises. "The biggest window screen frames I've seen are about 8 by 8 feet and go for about \$25. Even though they're not the strongest frames in the world, you can still have an 8-by-8-foot scrim in a frame for \$25!"

"There are many other hard-surface materials at the hardware store that are useful," Burum concludes. "One old standby is plywood painted white or silver, or with various foils stuck on it. Solid foam insulation — beadboard — sometimes comes with a silver as well as a soft white side." ■



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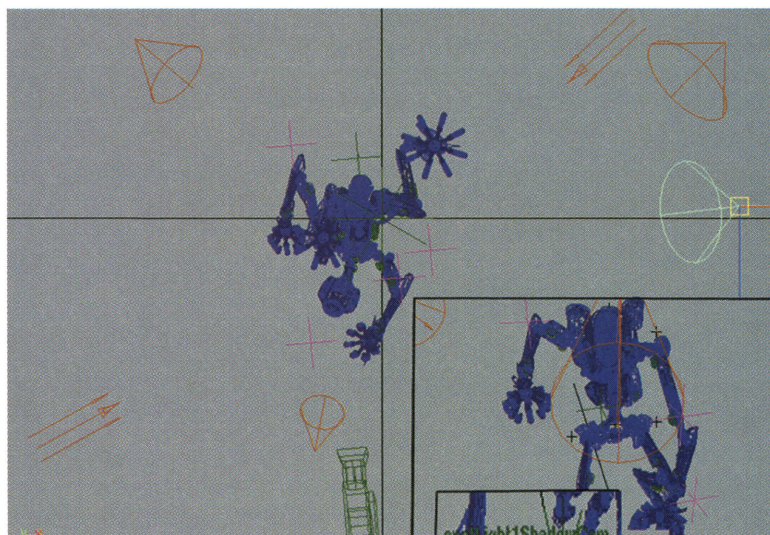
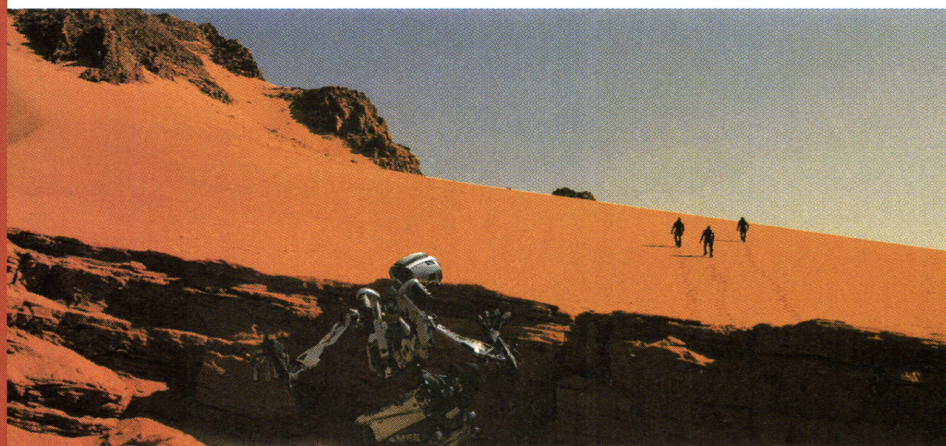
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Painting With (Virtual) Light

Digital-lighting artists explain how cinematographers' methods are adapted for the computerized canvas.

by Stephanie Argy



Digital artists who light scenes created or enhanced in the computer share many of the responsibilities of live-action cinematographers, but while both strive to establish mood through the use of light and shadow, the tools and techniques used in the virtual world demand a whole new mindset. "The concepts are similar, but the way the light responds is different," says Olun Riley, a digital lighter at Cinesite. "For a filmmaker, the canvas is the film, and light is the paint. With us, we have a grid of dots, and we have control over those pixels."

Pauline Ts'o, a vice president at Rhythm & Hues, says that in many ways, digital artists and cinematographers approach their shots with completely different objectives. "Traditional photographers and cinematographers tend to look at reality and try to simplify it to make it more graphic," she says. "When you do computer-generated [CG] imagery, you're starting with a blank page and trying to build layers and layers of complexity."

Habib Zargarpour, an associate visual-effects supervisor at Industrial Light & Magic, says many people underestimate the work involved in lighting a CG element or shot, noting that "their misconception is that things can happen automatically, [where] the computer does the work." He says he often reads or hears the phrase "the 3-D models were lit," but is disappointed by how

Photos courtesy of Cinesite, Pixar, Digital Domain, ILM and Rhythm & Hues.

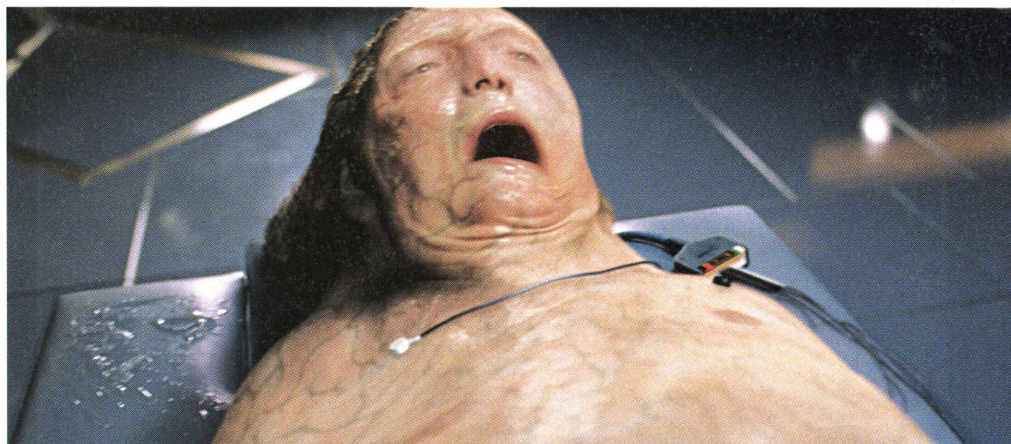
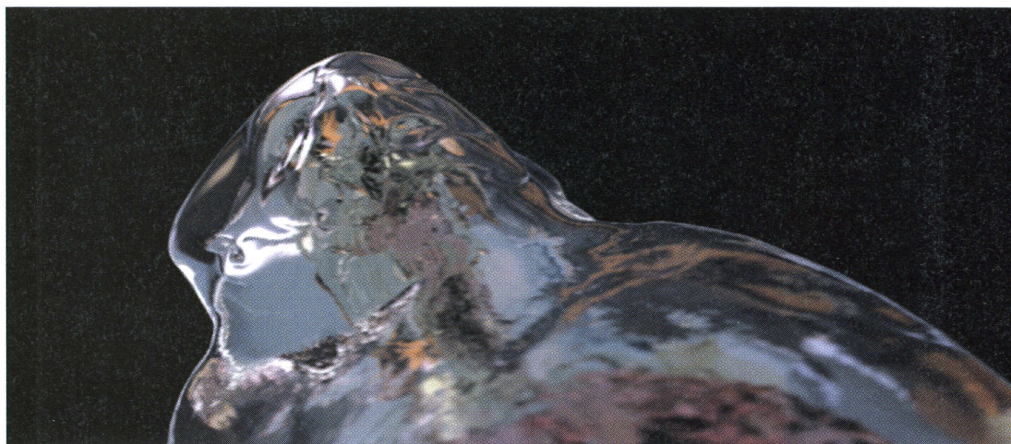
seldom the person who may have spent months doing that lighting is mentioned.

A substantial amount of image manipulation — including subtle color changes, the addition of film grain, and the combining of layers — can be done in 2-D compositing programs. Nevertheless, the actual placing of “lights” in a CG scene occurs in 3-D programs such as Alias|Wavefront Maya, NewTek Lightwave 3-D, Discreet Logic 3-D Studio Max, Side Effects Houdini or Avid’s SoftImage|XSI. “The tools available to us are often commercial tools that have been around for many years,” says Francis Liu, a technical director at Sony Pictures Imageworks and an instructor at the Gnomon School of Visual Effects. “Some have been around for 10 to 15 years.”

Lighting happens relatively late in the process of creating a CG object or scene. First, the object is modeled, which means it is given its underlying geometry. Then it is animated. Finally, it is lit, textured and rendered out into a final image. While some facilities use one software for the entire process, others prefer to use different programs for different stages. Lighting is often set up in one program, then translated into another that does the rendering, such as Pixar’s RenderMan. “There’s a lot of religious debate about rendering packages, and everybody has his favorites,” says Liu. RenderMan, whose creators will receive an Academy Award for technical achievement this year, remains the most widely used renderer for feature films.

Studios will often heavily customize their off-the-shelf softwares, as Alias|Wavefront’s product manager for Maya Imaging, Shai Hinitz, can attest. “We walk through some of our customers’ facilities and don’t even recognize that it’s Maya [they’re using],” he admits.

Most programs offer similar sets of digital lights, though the



names and onscreen icons that represent those lights can vary. The three main types are point lights, spotlights and directional lights. Point lights, also known as omnidirectional lights, shine out in all directions from an infinitely small point in space; spotlights also come from a single point but cast their light in a cone-shaped beam; and directional lights simulate light coming from a very distant source, such as the sun, by casting entirely parallel rays. Some programs, including Maya, also have area lights, which are cast not from a point but from region of space, so they can better simulate the look of lights in the physical world.

“Most of the lighting we use is point lighting,” says Brian LaFrance, a technical director at Disney’s The Secret Lab. “There is no area to the light, and that definitely affects how the lighting looks on a object. I tend to use spotlights, because they’re

easiest to control.” Often, he adds, numerous lights are combined to create one lighting effect.

Cinesite’s Riley says he uses mostly spotlights and directionals. On *Red Planet*, which featured many shiny metal surfaces, he chose to work more with spotlights to give the metal surfaces sharper highlights. On *Dinosaur*, however, the lights were larger and more distant to create an overall ambient light. “The choice is driven by the material,” he notes.

LaFrance says that in general, exteriors are easiest to light, especially exteriors with harsh, direct lighting. “Softer light is generally harder to imitate,” he observes. LaFrance has also taught digital lighting at Gnomon, and he says the most important lesson he tried to convey to students was that light is a lot more complicated in real life than current CG tools would lead them to believe. “[The challenge is] to try to

Opposite page: Cinesite provided astronauts with an extraterrestrial antagonist in Warner Bros.’ sci-fi thriller *Red Planet*. The cones surrounding the wireframe (bottom photo) represent the various spotlight sources used to create sharper highlights. **This page:** Digital Domain morphed the mutated Senator Kelly into a blob of water in 20th Century Fox’s *X-Men*, and the lighting and rendering of the liquid proved to be a tricky process.

Painting With (Virtual) Light



For the large-format film *The Artist's Journey*, Digital Domain created a lifelike — but younger — face for funk master James Brown and digitally superimposed the new visage onto a dance double. A mirror ball was placed on the set to use as a reference point, and the reflected light information gained by photographing in 360-degrees was applied to the lighting of Brown's digital face.



get that richness and complexity with these simplified tools."

Some adjustments that can be made to digital lights mimic those used by cinematographers, including filtration and diffusion. "We try to base all of our tools on physical tools," says Sharon Calahan, a director of photography at Pixar. Other adjustments, though, go far beyond what can be accomplished outside the computer. "We have a lot of controls that you can't have in the real world," she states. For example, the lighter can specify which objects he or she wants the light to hit, directing it to illuminate a character

but not a set. "We can tell the light how far to cast," says Wayne Vincenzi, lighting supervisor at Cinesite. The lighter can also look at the scene through the perspective of each light, as well as animate the movement and intensity of the lights, which are conveniently invisible.

Most importantly, the lighter can change the way an object reacts to the light shining on it. Says



rainbow-reflection look."

Artists also try to make surfaces look less perfect so that they appear more real. "We often add scratches and other irregularities to a surface," says Debbie Pashkoff, an art and lighting director at Rhythm & Hues. "For example, we might add fingerprints and rust spots to chrome surfaces, while other types of surfaces might benefit from an irregular bump or color map. A little randomness on a surface goes a long way." Vincenzi says those details are the kinds of things traditional directors of photography take for granted. "They get reality automatically," he says. "What you get for free in film, you don't get in CG."

Everything has to be created in the virtual world, including shadows, reflections and the surfaces of objects themselves. The lighters might be able to change surfaces at will, but those surfaces won't exist until specified. "We have to tell the computer what all of our surfaces look like before we can even get an image out of it," says Pashkoff. "If we haven't described the surface correctly, it doesn't look good. What makes something look plastic? What makes something look metal? All of that has to be sorted out and done first."

Shadows don't happen automatically, either. Renderers will create shadows within the CG environment, but doing so can be very expensive in terms of rendering time. And when a CG object is placed in a live-action setting so that it is supposed to cast a shadow on something filmed on set, that shadow must be fabricated along with the object. To do so, a second 3-D object is made that recreates the geometry of the live-action object so that the renderer will make a shadow across the duplicate shape. That shadow can then be composited with the original image. Says Sean Dever, 3-D department manager at Cinesite, "It's generally very simple, but time-consuming." ➤

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Painting With (Virtual) Light

The Gloucester fishing boat *Andrea Gail* was placed in peril by ILM for Warner Bros.' *The Perfect Storm*. Frame one shows the animatic created using Alias|Wavefront's Maya to help previsualize how the shot would look in the final composite. The ILM artists were able to use the animatics as a starting point to flesh out the details of the shot, as seen in the subsequent shaded frame with the wireframe boat superimposed on the digital ocean. Once the details and elements of the all-CG shot were shaded and rendered, dozens of layers were combined into the final composite. Notice the volumetric lighting above the boat and how the background is revealed by a lightning strike. The last frame shows the scene without a background lightning strike.

Many other elements of real-world lighting also have to be created from scratch. "The most glaring omission we have is bounce lights," says LaFrance. "Most of our tools deal with direct light." In most natural situations, he says, bounced lighting provides a lot of illumination, and that must somehow be recreated by digital-lighting artists. There are methods for calculating bounced lighting in the digital world. One process, ray tracing, tracks rays of light backward from the camera, following each ray of light as it bounces off object after object, up to a number of times (the "raytrace depth") specified by the lighter. This method tends to produce very sharp shadows, however. More realistic renderings can be generated using global illumination techniques, including radiosity, that calculate the lighting of a scene based not only on direct lighting, but also on the light and color reflected off of objects in the scene. Unfortunately, both raytracing and global-illumination techniques are computationally expensive and slow to render.

As a result, digital lighters try to figure out ways around having to calculate indirect lighting. "We place dozens of lights to replicate that look," says Zargarpour. For example, a soft area light might be placed in front of a wall so that it simulates the effect of light bouncing off that wall. If the wall is a particular color, that color will also be incorporated into its "bounce." Notes Dever, "It's just like regular filmmaking — you cheat wherever you can!"

Digital lighting is generally used for two different kinds of projects: those in which the entire environment is CG, and those in which a CG element is composited with existing live-action footage. Ts'o says that although software tools are the same for both, the approach is completely different. When working entirely in CG, she says, the digital artists become more like painters.

"Everything has to be conjured from the imagination," she notes.

Zargarpour says that working on *The Perfect Storm* (see AC July '00), which featured numerous scenes that were entirely CG, taught him just how much artists take for granted the information that comes

cult and more vital."

Projects that are completely CG also call for much greater involvement from the key lighting people. Calahan, who was a lighting supervisor on *Toy Story*, went on to serve as director of photography on *A Bug's Life* and *Toy Story 2*. "I'm responsible for the finished look of the film as far as the lighting goes," she explains. "A lot of my responsibilities are finding out whether we can achieve the look we want, and if not, what tools we need in order to do that — it's similar to the way in which a director of photography will go out to different locations, shoot wedges and prepare." One of her biggest jobs, she adds, is getting a crew of 40 to go in the same direction so that all the shots look as though the same person lit them. "In



from live-action footage. "You suddenly realize how many decisions you have to make that you didn't have to bother with when you put an element into a plate," he expounds. "There is an infinite number of variables, which makes decision-making and art direction much more diffi-

the real world, you don't have 40 people lighting!" she notes. She is also responsible for the look of the movie in its final format, whether that format is film or, as is often the case with Pixar projects, some sort of digital medium. "I go through the whole color-timing process that a regular

director of photography goes through."

The virtual-lighting process is different, and in some ways simpler, when CG elements are integrated into live-action footage. "The traditional cinematographer has really established the look, especially when it's just a few CG objects," says Ts'o. "The job is to take measurements of the actual lights — what they are, where they are, what color they are — so we can reconstruct them in the computer. It's more of an analytical problem."

Lighting director Eileen Jensen of Rhythm & Hues says she starts by approximating the on-set lighting, using diagrams when they're available. "If there's a light in the real world, we put a virtual light [in the same spot] in the CG world." That is just the beginning, though. "You're looking at the plate and at the shadows that are already cast, and you're simulating [that look], adding as many or as few lights as you want. You end up putting a heck of a lot more lights there than you think are there; you don't just put a light in for the sun and be done with it."

Lighting has traditionally been one of the more technical aspects of computer animation. Pashkoff says that although lighters come from a variety of backgrounds, it is helpful for them to have a strong technical expertise, including experience with C, C-Shell, and Unix. "Our ideal lighter is someone who has both a good eye for the aesthetic, as well as a solid understanding of the technical," she says, adding that such people have become rare. "Few really understand what's going on in the computer, which I think is a disadvantage."

A fine visual sense is equally unusual. "Everybody wants to work with somebody who has a good eye," states Pashkoff. "We can teach somebody our software, but we can't necessarily teach people to see things. Lighters are more in tune with reflection values and shadow values —

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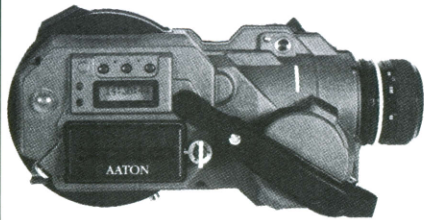
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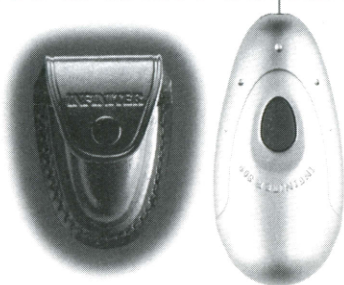
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Painting With (Virtual) Light



A series of scenes from Disney's *A Bug's Life*, the acclaimed animated feature created by Pixar. Sharon Calahan of Pixar, who served as director of photography on the film, comments, "A lot of my responsibilities are finding out whether we can achieve the look we want, and if not, which tools we need in order to do that."

what's pleasing to the eye and what's plain ugly."

Pashkoff learns a lot about aesthetics by visiting cinematographers at work, noting that "I love to watch them; they have awesome eyes." Eileen Jensen concurs, adding, "There's nothing more fun for us than a really imaginative cinematographer." Unfortunately, digital-lighting artists rarely get to interact with cinematographers. "That's too bad," stresses Cinesite's Dever. "There's a lot we could teach them, and a lot we could learn from them."

Ts'o says that when a live-action crew is shooting in a blue- or greenscreen environment, the crew needs a thorough understanding of the post process. "There are a number of pitfalls that can easily trip us up later," she points out. "Some obvious things, like blue or green spill, can slow us down quite a bit." She comments that on-set crews could also be more careful about continuity, adding, "When you're shooting a blue- or greenscreen element, you're kind of removed from the shots that surround it. It

takes an extra effort to remember what was done in those shots.”

Similarly, TSL's LaFrance agrees that it would be valuable for digital-lighting artists to understand more of the cinematographer's thought processes — which lights were used, why soft light versus hard light was chosen, and so on. “A lot of us come from a background where we don't have that real-world experience, and having access to people who do would be helpful,” he confirms.

Digital Domain visual-effects supervisor Andre Bustanoby says, “We need to get our heads out of the monitors a bit. We're starting by necessity to learn the language of film. We have to be informed by a lot of what happens on set. Conversely, we hope that cinematographers and gaffers can begin to see the digital tools, and [learn] which aspects of them are analogous to what they do.”

Like their on-set colleagues, digital lighters occasionally get frustrated with their tools. One common complaint is the slowness of the lighting process, in which everything has to be previewed or rendered before it can be seen. Zargarpour laments, “Before I came to ILM, I imagined that they had machines that could light something in real time, just like you would in reality. When I got here, I was deeply disappointed that that was not the case. By no means can we look at the final image and do an adjustment — the simulation takes hours to run, and the render takes all night. When you have, say, four weeks to do a shot, you're going to see it once a day. There's really no substitute for real-time feedback; you could do a shot in hours or days instead of weeks.”

Reid Gershbein, president and CEO of the animation and movie studio Thrave, is working on technology that could make that kind of speed possible. “People always thought that the surface properties and the lighting went together,” he



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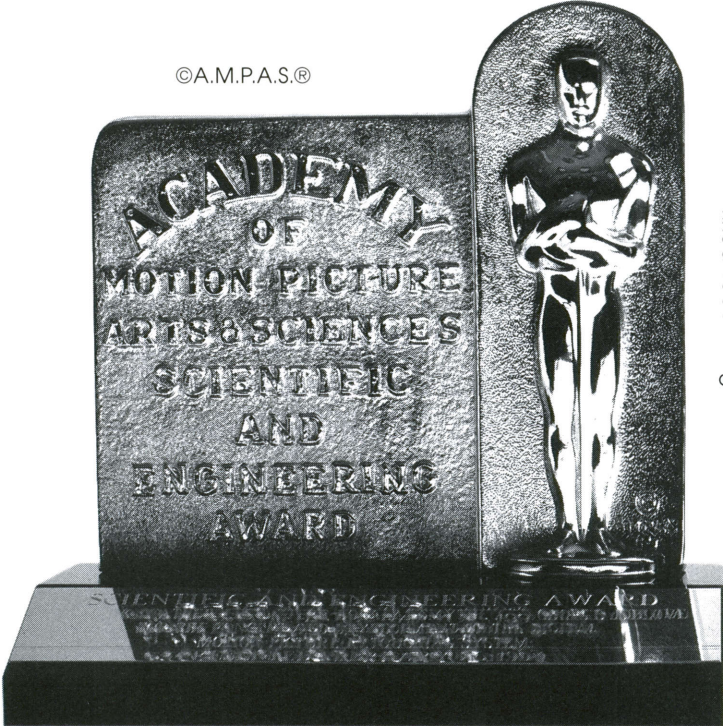
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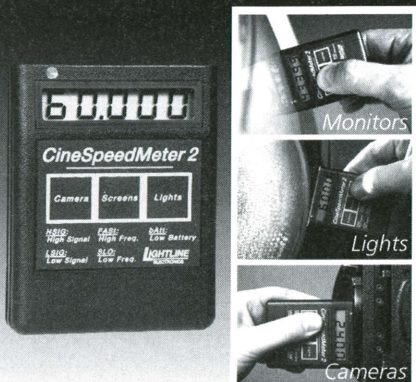
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Painting With (Virtual) Light



Rhythm & Hues lent its digital expertise to Universal's *Babe: Pig in the City* (featuring talking chimps with no fashion sense) and the large-format 3-D ride film *Race for Atlantis*. Rhythm & Hues' lighting director Eileen Jensen begins the process by approximating the on-set lighting. "If there's a light in the real world, we put a virtual light [in the same spot] in the CG world," she explains.

says. "I decided to separate them. With this new technology, when you create the scene for lighting, you precalculate all of the surface properties, the geometry, what you can see from a camera angle. You only store that once, in the beginning. The only thing you have to calculate is the lighting."

The other significant development on the horizon for digital lighting is image-based graphics, which could enable CG artists to sample the real world and use that information to come up with settings and lighting that are indistinguishable from reality. Dr. Paul Debevec, executive producer of graphics research at USC's Institute for Creative Technologies, has been developing computer-graphics techniques that use information derived from photographs. Initially, he used that information to generate models, a process used to great effect on *The Matrix* by one of his students.

But Debevec soon realized that photos could also offer extremely accurate lighting information, and he began photographing different locations, bracketing from the darkest possible exposure to the brightest, so that he had a series of images shot at different stops. "Every one had information that the others didn't," Debevec details. "What we came up with was a digital algorithm for combining all these different images into one single image that represents the full range of information." This high dynamic range (HDR) image, as Debevec calls it, fully records all of the light within the scene, with detail available from the darkest to the lightest parts.

He then began using HDR photography to shoot mirrored spheres for what he calls "light probe images," which "tell us, for every direction, where light is coming from, what color it is and how bright it is," he explains. "Once you have this accurate information, you can use this image as a light source." That light source can then be applied to a

CG object so that it is lit by exactly the same lighting that was used on set. This gives a far more realistic result than CG can usually produce.

Many in the visual-effects community are intrigued by the process. "To a lot of us down in the trenches, that is the next step," says LaFrance. "We're just waiting for the studios to realize it." Some commercial programs, including Lightwave, can already import HDR images.

Bustanoby of Digital Domain says these new techniques will give the cinematographer more responsibility for the image all through the post process. "They are authoring the lighting, the look of the piece, via the camera and the lights they set up. With these new tools, they can also help author the digital image. It makes perfect sense that we should help carry that through as directly as we can."

From the artists' perspective, though, image-based rendering can seem a bit intimidating. "There's always the issue of people feeling as if their jobs are on the line," says Zargarpour. "People pride themselves on being able to make things look real. If the software can make it look real, people feel threatened. They're going to feel that their [ability] to replicate reality is no longer needed. But in reality, [these tools are] going to free them up to make more artistic decisions."

Bustanoby hopes that such techniques will help artists look beyond the tools they use. "That's kind of been missing throughout the last seven to eight years of digital filmmaking, partly because the tools are so new," he admits. "It's easy to get mesmerized by all of the tools and buttons. That's great, but does it tell the story? They have to think first about what they want. It goes back to what traditional filmmakers have always had to do: visualize the shot first." ■



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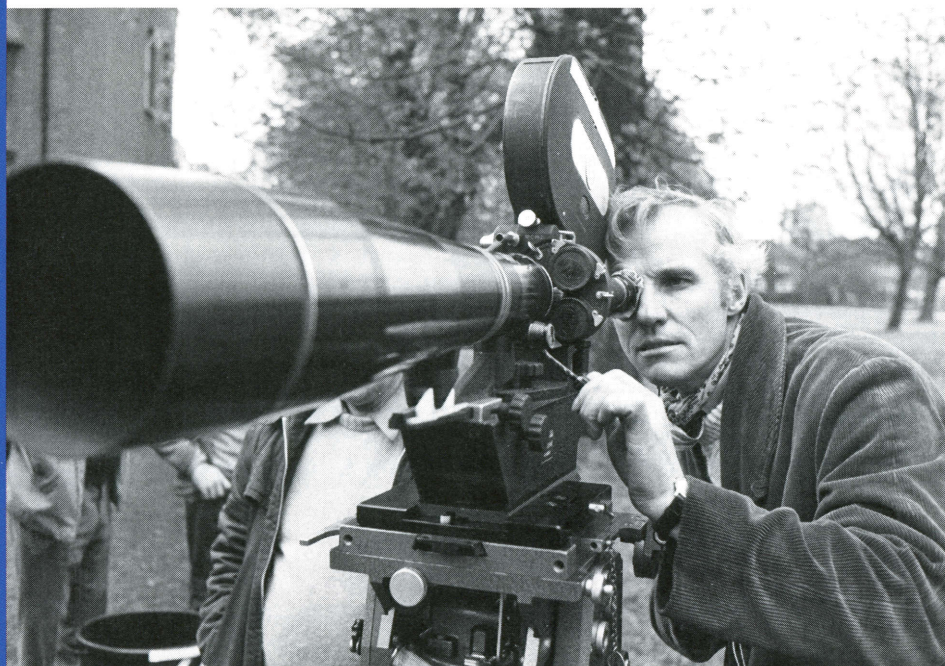
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Billy Williams, BSC, this year's recipient of the ASC International Award, looks back upon his accomplished career.

by John Gainsborough



When Billy Williams, BSC was presented with the ASC International Award at the 15th Annual ASC Awards last month, it was the second prestigious cinematography honor bestowed on him by his peers in just three months. Late last year, Williams was given the Lifetime Achievement Award at the Camerimage Festival of Cinematography in Lodz, Poland. After spending 52 years behind the camera, working with directors as diverse as Sir Richard Attenborough

(*Gandhi*), John Schlesinger (*Sunday, Bloody Sunday*), Ken Russell (*Women in Love* and *Billion Dollar Brain*), Peter Yates (*Eleni* and *Suspect*) and John Milius (*The Wind and the Lion*), the 71-year-old cameraman has retired from shooting, though he is still actively involved in training and teaching international master classes.

Like many feature-film cinematographers, Williams began practicing his craft on documentary and commercial projects; his first film was a short for a charity appeal. His

big chance came when producer Harry Saltzman hired him to shoot *Billion Dollar Brain* in 1967 at the behest of director Ken Russell. "Let's give the kid a break," Saltzman said to Russell after watching the cinematographer's reel. As Williams wryly notes, he was 37 at the time.

Billion Dollar Brain led to many other important pictures, including another collaboration with Russell, 1969's *Women in Love*, which earned Williams the first of three Academy Award nominations. He was later nominated for *On Golden Pond* (1981) and *Gandhi* (1982); Williams shared the latter honor with co-director of photography Ronnie Taylor, BSC, and the pair took home the Oscar that year.

Williams's feature credits include *The Magus* (1968), *The Glass Menagerie* (1973), *Voyage of the Damned* (1976), *Eagle's Wing* (1979), *Monsignor* (1982), *The Manhattan Project* (1986) and *Shadow of the Wolf* (1993). He won BSC Awards for his work on *Gandhi* and *Eagle's Wing*, and he earned BAFTA Film Award nominations for *Gandhi*, *The Magus*, *Women in Love* and *Sunday, Bloody Sunday*.

"I was, as it were, born into the industry," says Williams, noting that

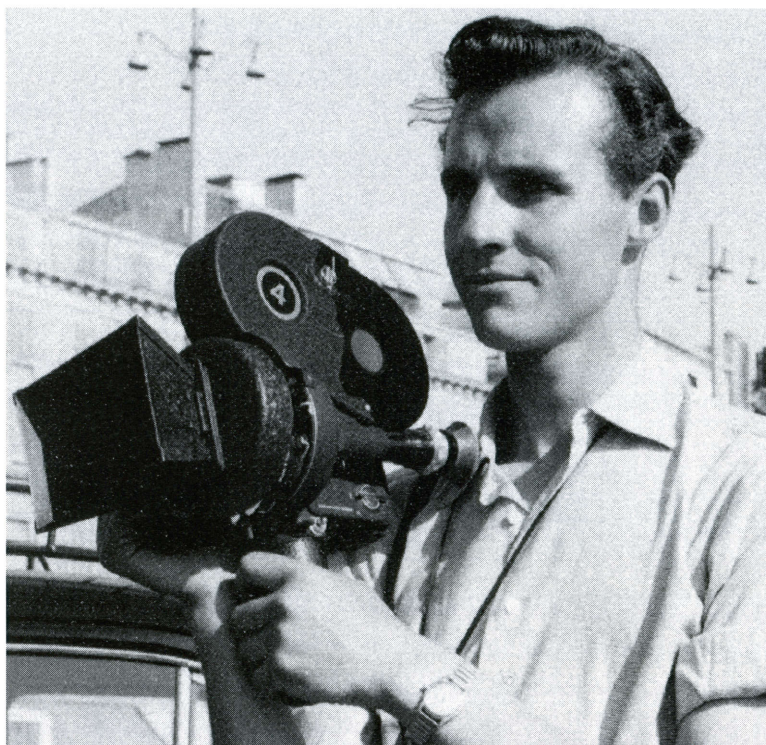
Photos courtesy of Billy Williams, BSC.

his father began working as a cameraman in 1910. The senior Williams was one of only two cameramen in the Royal Navy from 1914-1918, and had the rare distinction of shooting the surrender of the German fleet as it steamed into Scapa Flow (north of Scotland) at the end of World War I. At one point, Williams's father worked for G. B. Samuelson, an early silent filmmaker, and he later became a documentary and expedition cameraman, which led him to shoot the Capetown-to-Cairo expedition for General Motors in 1928.

Williams dropped out of school at the age of 14 and worked with his father as an assistant for nearly four years. When he was 17, the pair spent eight months in Africa working on educational films for the Colonial Office Film Unit. All of their work was 35mm black-and-white, and their projects later included a large number of training films for the armed services. Williams served in the Royal Air Force from 1947-1949 as a stills photographer and was based in Oxfordshire; the assignment followed a 16-week photography course that was part of his RAF training.

Following his military service, Williams joined British Transport Films, a documentary production company, as an assistant cameraman in 1949. The company's films focused on the country's then-nationalized transportation infrastructure. Although Williams worked with Kodachrome stock on some productions, a majority of the films were black-and-white. He traveled throughout the country for the next five years, and he says the experience he gained during that period gave him the ability to shoot anything anywhere, in all sorts of conditions. He notes that he did not shoot in a studio until he began working on commercials later in his career.

Williams left British Transport Films to go freelance as a documentary cameraman. Almost by accident,

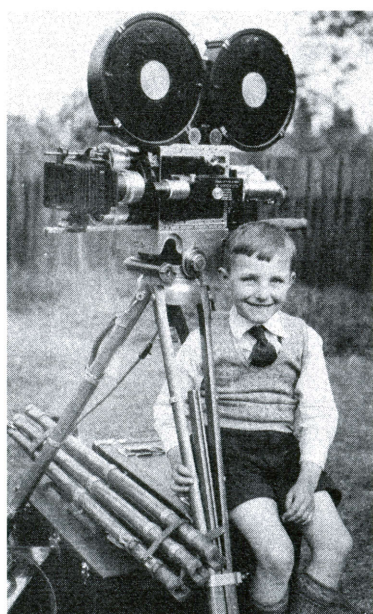


Opposite page: Billy Williams, BSC frames a shot during production of *Sunday, Bloody Sunday*, the 1971 drama directed by John Schlesinger. This page, top: Williams, shown here in France in 1955, cut his teeth on black-and-white documentaries and training films. Below: Even at the tender age of 8, Williams, whose father was a cameraman, recognized his calling.

he found himself shooting television commercials and working with several new young directors, including Russell and Schlesinger; within two or three years, he would shoot a feature for each of them. "I had gone into the commercials production company to do a day's freelance work, and I stayed for nearly five years," Williams recalls. "Initially I

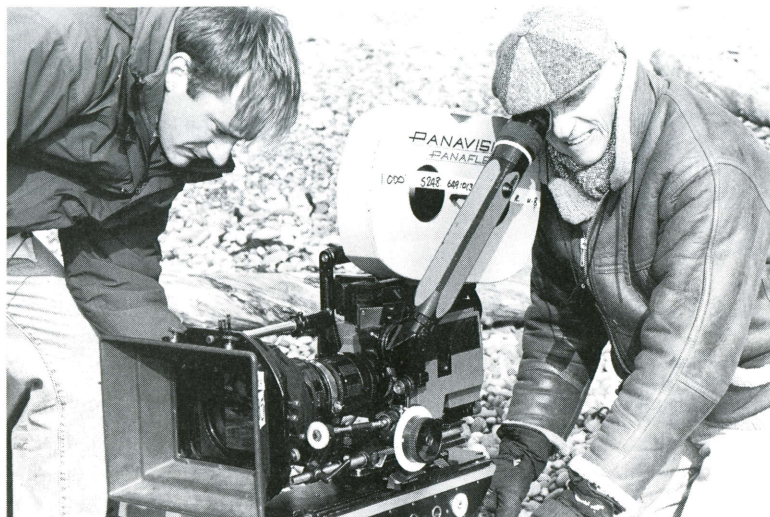
shot in black-and-white, again on 35mm, as there was no color television then. We shot every possible kind of product." Commercials for television were then a challenging new genre, and the opportunity for lively direction and camera work was inherent in their production. As commercials became more sophisticated, established actors began to replace models in the productions.

Once established, Williams was selective about the films he undertook. "I was almost too choosy," he admits. He took on an American agent and scripts flowed in, but he determined that he would only work on a feature if it had a story worth telling, characters he could believe in, and strong visual potential. He also wanted to work with good directors. Williams's lack of a studio background and his comfort with shooting on location convinced him that it was not necessary to shoot an entire movie in a particular style; instead, each scene could be lit according to the drama of the situation. Citing an example from *Women in Love*, which enabled



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Top: Williams operates the camera on *Driftwood* (1996), the last feature film he photographed before retiring. Middle: Seated on the crane at right, Williams watches the action in *Gandhi* while director Sir Richard Attenborough (foreground) surveys the scene. Bottom: Williams (far right, crouching) observes a rehearsal during production of the 1979 Western *Eagle's Wing*.



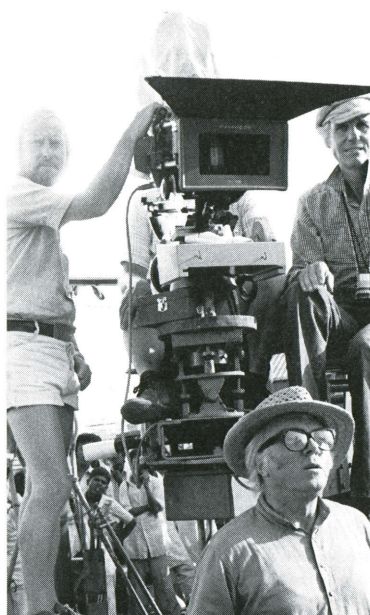
him to work with candlelight, firelight, dusk and dawn situations, he says he decided to use light unambiguously as a form of emotional expression. "In the wrestling scene in that film, I simply went for the natural color of the firelight, which was about 1800° Kelvin and very orange. That type of approach is quite common now, but at the time, going to that extreme of color wasn't really done," he notes.

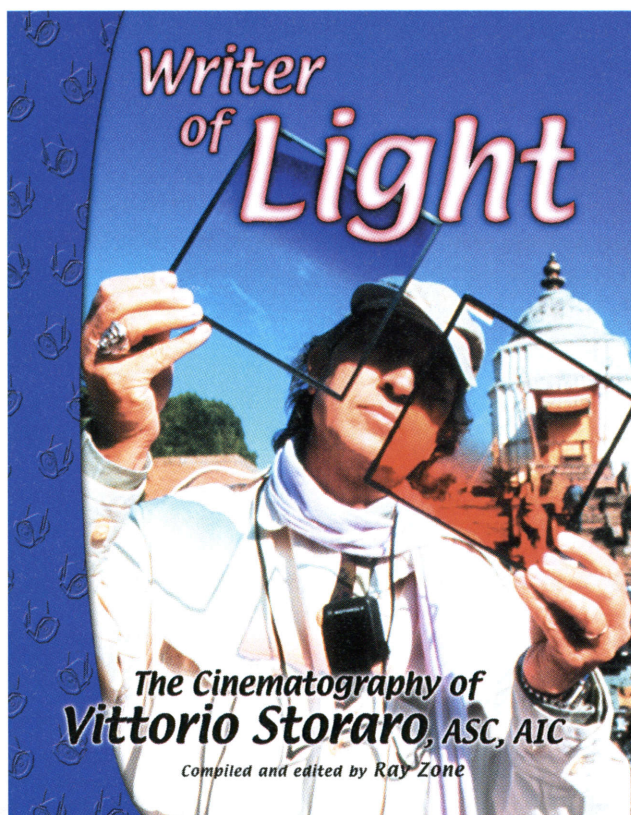
Although every movie he has lit since 1969 has been in color, Williams says his apprenticeship with his father and his experiences with black-and-white have never deserted him. He recalls that his father started out working in a silent studio with glass walls in Walthamstow (in northeast London), where translucent silk curtains could be drawn against the sun, providing the very first form of soft light. When presented with color images, Williams says, he still thinks first in purely tonal terms, trying to gain a separation between different planes to enhance the third dimension, and then translating that aesthetic into a light color on a dark color, or vice versa, to "build more perspective into the imagery."

His first short feature, *San Ferry Ann* (1965), was shot in black-and-white, but he says he never subsequently managed to persuade

any of his producers or directors to shoot their subjects in monochrome. He notes ruefully that the scarcity of black-and-white films is a commercial edict that can usually be circumvented only by a filmmaker with clout, such as Woody Allen or Steven Spielberg.

In reflecting on his work, Williams maintains that cinematography should both complement and enhance a script. This, he says, is the essential job of the cinematographer as visual storyteller, and the relationship between the director and the cinematographer is very much a partnership where creative ideas are exchanged toward this end. Williams says the logistics of a location and rehearsals with actors are key to good visual storytelling. "Everything is not necessarily written down by the writer, who might have been writing [the screenplay] months before, in a place that's not at all like the location where you are going to shoot," he points out. "Wonderful things can come out of being on location. What I have enjoyed is going somewhere that I have never been to before, discovering the environment and nature of the place, and putting the cast within that place convincingly." He adds that New Hampshire (for *On Golden Pond*), Mexico (*Kid Blue*)





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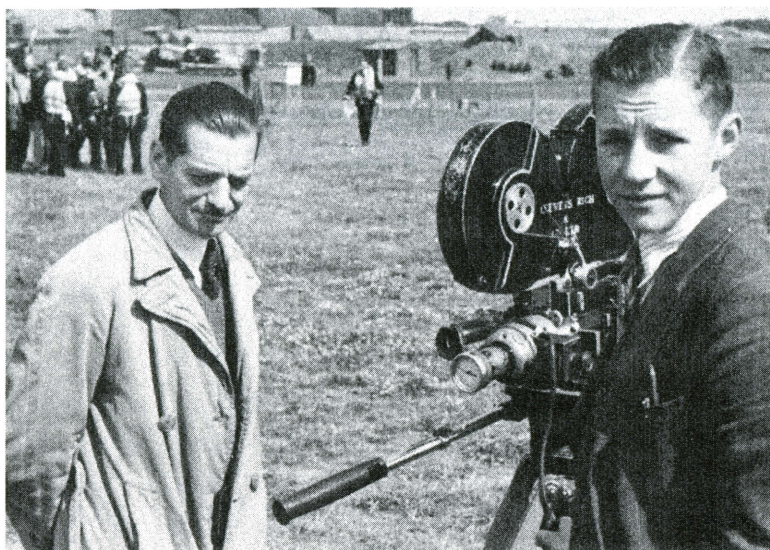
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Top: Father and son stand around the family focal point: a movie camera. Middle: Williams (left) works on location during production of *The Manhattan Project* in 1986. Bottom: Paying a visit to the new Cooke Optics facility in Leicester, England. From left to right, actor/director Sir Richard Attenborough, Cooke chairman Les Zellan, Phil Nodding of the British Film Commission, Williams and Cooke optical technician Raju Mistry take a close look at a Cooke lens as it undergoes quality-assurance testing.



and India (*Gandhi*) were all places he had never visited before shooting in them.

Williams says that *Gandhi* gave him almost everything he could wish for in a script. "It is the most comprehensive and exciting script I have ever been offered, and the life of this amazing man makes [for] compelling cinema," Williams wrote in the British publication *Eyeopiece* in 1982. "The script ... is historically accurate, deeply moving and visually challenging, [with] India itself providing the color with an infinite variety of light." Sadly, Williams was crippled by a slipped disc midway through the shoot and was forced to return to London; Ronnie Taylor, BSC took over until Williams could return to the production.

Like many cinematographers, Williams watches rehearsals closely. "Some of the best things [in my films] came out of just watching rehearsals. Often, something will suddenly come to light that's not necessarily in the script, in the way an actor behaves or gestures. And you think, 'That's what the scene is about and that's what the camera should be paying attention to.'" He adds that it's essential for the creative triumvirate at the heart of every shot — the director, actor and cinematographer — to have such empathy during the process, noting that he was fortunate to work mainly with directors who were open to ideas.

Given his understanding of these modalities, it is hardly surprising that Williams expresses a high regard for actors, particularly those who can execute their parts with the precision to match the emotion and accuracy of movement demanded by the camera. He recalls with awe working with Elizabeth Taylor on *Zee and Co.* and *Night Watch*. "She had a great sense of fun and was amazing to work with," he recalls. "The first take was always perfect, and whatever you'd ask her to do technically, she would hit it every time and never

miss a mark or a cue. She spent all of her life in the Hollywood system, which was very strict on technique."

He says working with Katharine Hepburn was another great experience. "I worked with her on *The Glass Menagerie* [in 1973], so when we did *On Golden Pond* we renewed our friendship and got on very well. She is such a driving force, full of ideas, and she used to come to me about her wardrobe and ask what I wanted her to wear. That had already been decided, of course, but she would keep coming up to me with a scarlet cardigan and asking me if it was right for the scene. I didn't think so because the strong color was so eye-catching, and finally she said, 'Don't you like this wonderful color? Why don't you like it? Have you never seen all those French Impressionist paintings where they always use a dash of red?' I said, 'Yes, and your eye goes straight to it.' She responded, 'That's exactly what I want!' She knew precisely how to steal the scene!"

Long before he had such actresses framed in his finder, Williams was acutely aware of the importance of the portrait side of a cinematographer's work. "How you light the face [really] affects the drama," he notes. "You can light actors to look young and attractive, or older or more sinister, depending on the nature of the story." He has long been intrigued by the art of painting, particularly as practiced by Rembrandt, Derain, and other Impressionists, as well as the German Expressionists. Williams says studying such works is essential for every cinematographer. The cameraman has even tried some painting himself, and notes that he learned a lot from the effort. Though he still goes on painting holidays with his wife Anne, who is an accomplished artist, he no longer works in the medium.

Throughout his career, Williams was adept at moving from productions on one side of the

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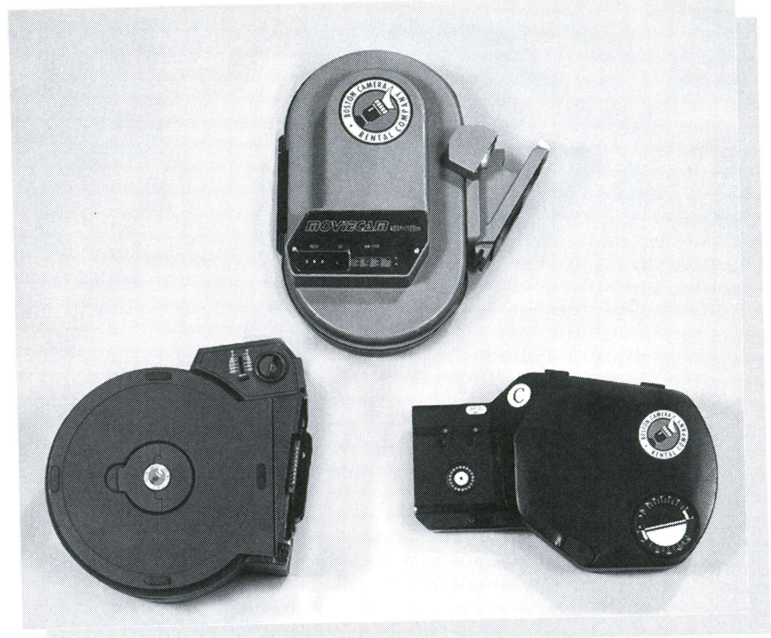
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Atlantic to the other, and he says he was slightly envious of the higher quality and quantity of grip equipment available to cinematographers in America during the 1970s and 1980s. He says that this inequality made excellence harder to achieve on British productions, but he adds that he doesn't think the disparity exists anymore.

Williams says he has been a fan of Cooke lenses from the beginning, and many of his films, including

ment. He has also taught at schools and workshops around the world, including the International Film Workshops in Rockport, Maine, and the Director of Photography Master Classes in Budapest.

Williams says he enjoys teaching and the lateral thinking, critical analysis and stimulation it provokes. "It is so different from being on a set. There, the cinematographer is concentrating on the job, conferring with the director, and telling people what to do, but nobody ever asks you why you are doing it. It's not their place, nor is there time to stand around explaining what you're trying to achieve. But in film school, the students want to know exactly why things have been done in a certain way and why you would use certain techniques, [which] engenders a whole area of analysis. It's not just for the students, but also for me. A student can be quite frank and sometimes ask you embarrassing questions, and you have to admit that with hindsight, perhaps you could have done something a bit better! It all helps to improve what one does."

A consistent and close involvement in the industry has marked Williams's career. He was president of the BSC from 1975-1977, at which time he encouraged constructive engagement with the BBC Film Department, which had at least 70 crews working mainly in 16mm for television programs at that time. As the BBC subsequently ran down its film department, following the trend of the studio system, many of the BBC cameramen moved into feature films and later became members of the BSC; among them were Tony Pierce-Roberts (*The Golden Bowl*, see *Global Village*, AC Oct. '00), Andrew Dunn (*The Madness of King George*) and Remi Adefarasin (*The House of Mirth*; see *Global Village*, AC Feb. '01).

Williams and his wife have been married for 43 years and have

four daughters. During that span, the cinematographer actually made appearances in two of his movies. John Milius was the first director to offer him a small role, in *The Wind and the Lion*: "I played the part of the British vice-consul in Tangier, and it was an extraordinary experience. I had a dialogue scene with Candice Bergen, followed by an action scene in which I had to shoot half a dozen Berbers, who came off their horses in very spectacular fashion." Years later, during production of *Suspect*, Peter Yates also put Williams onscreen when an actor who'd been hired to play a small role as a professor became unavailable at the last minute.

Williams says that his experience on *Dreamchild* offers an example of the artistic opportunities and frustrations sometimes encountered by cinematographers, and also illustrates his fascination with black-and-white. The heroine of the film is Alice of *Alice in Wonderland*, who goes to New York in 1932 as a very old woman and becomes a celebrity. Much of the film is a long flashback to her childhood in the 1860s, when Lewis Carroll (the pen name of Reverend Charles Dodgson) relates the original stories of Alice to her. Williams recalls, "It occurred to me that it would help matters considerably if the 1930s period were in black-and-white — especially as we needed a lot of black-and-white material of New York in that period — and the Victorian period were in rich color. I suggested this to the producers and the director, and they thought it was a good idea. Technicolor could handle it, and we finally had a meeting with [screenwriter] Dennis Potter, whose company was making the film, not long before shooting was due to start. I raised the idea, but he shot it down in flames! He thought it would be a distraction, [so] I didn't get my black-and-white." ■



Williams poses with his wife Anne while holding the Best Cinematography Oscar he shared with Ronnie Taylor, BSC for *Gandhi* (1982). Midway during production of the film, Williams was incapacitated by a slipped disc, and Taylor had to fill in.

Women in Love and *Dreamchild*, were shot with Cooke Speed Panchros. He used Cooke lenses whenever they fit the cameras on a production, and he regrets that he won't have a chance to try out the new series of Cooke S4s.

In 1978, a new facet of Williams's career opened up when he was asked to conduct workshops at the National Film and Television School in Beaconsfield. He has since taught extensively, both at Beaconsfield and for Skillset, a training program backed by the govern-

Short Takes

A Landmark Film

by Stephanie Argy

Beginning this spring, visitors to Yosemite National Park in northern California will be able to see *Spirit of Yosemite*, a 23-minute film that strives to form a connection between the park and the people passing through it. "When you go to Yosemite for the first time, or even for the 30th or 100th time, the scenery buckles your knees," says director David Vassar. "It's an overwhelmingly powerful, emotional experience. We didn't want to make a movie that would counter that with an intellectual discussion of geological processes. On the other hand, if you understand how volcanoes pushed up the mountains, how this amazing flora and fauna came about, then in addition to being blown away by the scenery, you're blown away by the process that created it."

Yosemite is, of course, one of the most photographed locations in the world — and has been since photography was invented. "The challenge was how to photograph this place and make it fresh, how to come up with angles that wouldn't be reminiscent of things people have already seen," Vassar notes. Fortunately, the director had worked at Yosemite as a young man, and he knew not only less-frequented areas of the park, but also some unusual vantage points of some of its best-known landmarks.

Vassar says he knew instantly that he wanted to work with cinematographer Christopher G. Tufty, whom he has known for almost 30 years, on *Spirit of Yosemite*. The two have collaborated on



some especially arduous projects; they first teamed up on *Canyon Consort*, for which they rafted down the Colorado River, and their subsequent project took them to the Arctic. "When I do shows with him, they're always in exotic locations," remarks Tufty.

From the beginning, Vassar and Tufty wanted the *Yosemite* film, which was funded by the nonprofit Yosemite Fund, to have more visual flair than the average nature documentary. Vassar notes, "We decided up front that we were going to bring feature-filmmaking crews and style to Yosemite, rather than using a sort of mountaineering/natural-history film aesthetic, where virtually everything is on a tripod and a 12-120mm zoom."

Spirit of Yosemite was shot in Super 35 for high-definition (HD) projection. Tufty chose an Arriflex 435 as his main camera and an Arri III for backup, because he felt Arris would be rugged enough to handle the extreme conditions, particularly the cold weather. "They're also small enough and light enough that we could put them on a

mule and take them up to 12,000-foot elevations without worrying about babying them," he notes.

The crew carried Zeiss prime lenses ranging from 14mm to 85mm, with a macro lens for extreme close-ups of lichen and flora. For a sequence of giant sequoia trees shot from an 85' Akela crane, Tufty used a Cooke 18-100mm zoom, and for shots of waterfalls, he used a 150-600mm zoom to get right into the water.

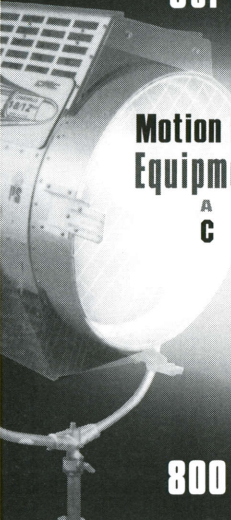
Spirit of Yosemite was photographed in five separate shoots that took place between March 1999 and July 2000. This allowed the filmmakers to capture the park during all four seasons, and to shoot certain sequences that had to be filmed at particular times of the year. "The waterfalls, for instance, are all flowing in spring," Tufty points out. Knowing the focus of a particular shoot enabled the cinematographer to adjust his camera and grip orders accordingly. For example, during the waterfall shoot in spring, he brought a mist deflector, extra batteries to run it, rain covers and so on; for a sequence in the High

Spirit of Yosemite is a 23-minute film that will debut in a new digital theater at Yosemite National Park this spring. The production was photographed on 35mm for high-definition projection.

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Top: Director of photography Christopher G. Tufty gets a light reading while 1st AC John Malvino readies the camera. Bottom: The crew films a dolly shot during the fall. The film encompasses all four seasons and required five separate shoots between March 1999 and July 2000.

Sierra, he ordered an intervalometer for time-lapse photography.

Tufty began preparing for the project with a series of film tests. Knowing that the light and contrast challenges he would encounter in Yosemite were unique to that location, he took a weekend trip up to the park after it had snowed. There, he experimented with Kodak EXR 5245, EXR 5248, EXR 5298, Vision 320T 5277 and Vision 500T 5279. His primary concern was how the stocks would handle the contrast, especially the dark tree barks and the white snow, and he found that a combination of 5245 and 5277 worked best. "The 45 could handle the overexposure of the hot rocks or the bright snow better," he clarifies. "The 77 held the detail in the darks without losing the blacks." At times, he also used the 77 to desaturate shots of the park's wildflowers, explaining that "they seemed

unnaturally bright with the 45; the 77 showed more of the delicate textures."

Tufty occasionally used a polarizer for wide shots, and a Tiffen Tobacco #3 and a Tiffen #2 White ProMist for some period recreations, but he shot most of the movie without filtration. The cinematographer worked almost exclusively with available light; for a couple of nighttime firelit scenes, he used a few Mighties and Mickies on dimmers to augment real firelight.

In some ways, Vassar and Tufty approached *Spirit of Yosemite* almost as a traditional narrative film — particularly in the way they organized shots, which involved working from a 30-page outline and very specific shot lists. "It wasn't like coverage, but we'd tried to do grand vistas in a master shot, and then get little details that we could intercut as part of the sequence," says Tufty.



The filmmakers also developed certain visual themes. "To photograph anything with water flowing down, we always tilted the camera upstream," Tufty offers. In the movie's geology sequences, which discuss how the park was formed by the movement of glaciers, the camera tilts down, as though following the path of those glaciers. The camera is almost always in motion, too. "We decided to have almost every shot panning, tilting or craning," Vassar details. "The movement of the camera throughout the film gives it a really dreamy quality."

Throughout the various shoots, a Matthews doorway dolly and about 16 feet of track were literally carried by the crew, who wore Pelican cases strapped onto heavy-duty backpack frames, in addition to their daypacks. "It's a whole different concept of filmmaking," stresses Vassar. "You're 17 miles from the truck. If you forget something, it's over!" Bearing this in mind, Tufty kept each shoot tightly organized and maintained extensive preplanning. "I'd go up to the location a couple days before each shoot to scout and figure out what would be the best time to shoot," he says. "We'd schedule it, then bring the crew up with all the gear." The light is so changeable in the park, though, that the scouting information was occasionally out of date by the time the crew arrived. "Sometimes in just two or three days, [the sun] wouldn't light the area the same way it had [when I scouted a particular location]," Tufty recalls.

Ironically, change is one of the most important themes in the movie, a metaphor that is neatly encapsulated by a tracking shot in which the seasons actually change as the camera dollies along. "We were inspired to do it just as a lock-off, but then David and I began saying, 'Wouldn't it be neat if we could do a camera move that would go through the seasons?'" Tufty remembers. The challenge, of course, was how to do the shot, go away for several months, and then line up the next installment of the shot in exactly the same place. Tufty says a GPS wouldn't have been accurate enough, so he and Vassar approached

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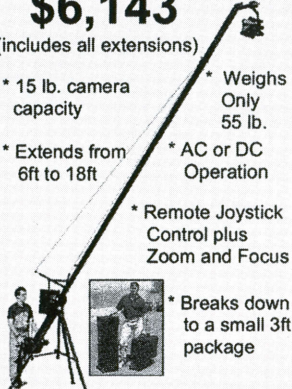
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the job in a completely low-tech but ultimately effective way.

In July 1999, they did the first phase of the shot, picking the angle and move they wanted and taking copious notes about the position of the camera. "We were able to spray-paint the outline of the track on a bicycle path," Tufty explains. "That way, we could lay the track in the same position [for subsequent shoots]." To fine-tune the camera angle when they returned to the shot in November 1999 and again in March 2000, Tufty slid one frame of film printed from the previous shoot into the gate at the start of the shot, and another at the end. This allowed him to do a very precise match, but without the added expense and weight of a video tap. The 60' dolly move took about 32 seconds from one end of the track to the other. "We just shot it from head to toe in each season," says Tufty. Ultimately, he adds, the match was so good that the filmmakers didn't have to do the digital morph they had assumed they would need.

Spirit of Yosemite will be shown at the park with a digital projector, in a high-def version transferred from film by Laser Pacific in Hollywood. Tufty says he is delighted with the HD copy. "It was almost like I shot on 4-by-5 or 8-by-10 negative, because there was so much more detail in the HD version than I ever saw on the projected film screen," he exclaims. "Plus, now that it's going to be on a hard drive, it's going to be all pixels — that's zeros and ones, so there'll never be any scratches or cinch marks or hairs in the gate." He adds, however, that he's glad the project originated on film: "Film just has a nicer palette. I like the idea of shooting on film and projecting on digital; I think that's the best of both worlds."

Vassar says the theater that is about to open in Yosemite has been specifically designed to showcase *Spirit of Yosemite*, and the film was color-corrected for the very projector on which it will play for the next decade. "The film is designed to run in Yosemite, period," he declares. "It's incredible for a filmmaker to have that kind of quality control!"

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Iwerks's new 15/70 camera has been used on its first shoot for *The Human Body*, a BBC large-format (LF) film directed by Peter Georgi and photographed by veteran LF cinematographer Reed Smoot, ASC and David Barlow. So far, over half a million feet of film has run through the new camera without a hitch, and there have been no registration problems. Most of the footage has consisted of live-action exterior shots and one screen-filling close-up of the human eye.

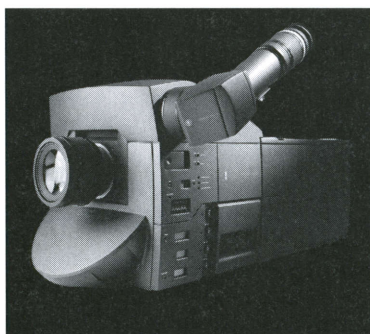
Though the cameras are called "15/70," the actual film stock used during production is 65mm; 70mm film is struck for the release prints. The additional 5mm is used for the soundtrack on conventional formats, but not with LF.

"Our customers have been requesting 15/70 cameras for years," says Scott Shepley, director of technical services at Iwerks, who supervised construction of the new camera. The 15/70 camera was assembled and fine-tuned at the Iwerks camera department by chief engineer Don Holst and technicians Darryl Davis and Marty Joseph, assisted by designer Carlos Castro. Davis emerged from retirement to work on the new camera after a 30-year career in the camera department at Walt Disney Company. Holst, Joseph and Castro brought cameras they helped design from Cinema Products, Inc. over to Iwerks. Cinema Products, best known for the Steadicam and also responsible for the original Showscan cameras and the CP16 16mm camera, was recently purchased by the Tiffen Company.

Three-dimensional computer modeling software was used to design the new 15/70 camera. Computer-controlled milling machines manufac-

tured it. The camera's industrial designer, Joe Lenny of Sandlake Design, focused on creating a sleek look and feel, compact ergonomics and ease of handling. Input from cinematographers and camera assistants was also incorporated into the camera's design. It has an extremely bright eyepiece that can be offset to a comfortable position, and its switches are easy to find.

Iwerks acquired the rights to the Williamson movement from designer Jeff Williamson, who created the 48 fps



VistaVision cameras, as well as the Imax IW-4 and IW-5 cameras. "We thought we were going to incorporate the Williamson movement into the 15/70 camera very easily," says Shepley, "but it wasn't very easy at all. We had to redesign the entire movement because of its height constraints. When we exploded it out to 15-perf movement, we determined that it was actually too high and wouldn't fit in the camera at the level we needed."

Pitch adjustment, which retards or advances the pulldown claws, had to be modified for the new camera to run at faster speeds. As the film format gets larger and the film runs at faster speeds, the pitch adjustment becomes more critical. Iwerks 8/70 cameras run well with a single pitch adjustment, but two separate pitch adjustments were necessary for the 15/70.

"The movement had to be completely redesigned to work in the configuration we needed," says Shepley, "and we had to build in a pitch control for the movement." One pitch setting for the camera runs at zero to 36 fps. Another setting runs from 37 to 48 fps. "We use double-pin registration in the travel of the film with a full-fitting pin closest to the pulldown, and 15 perfs away we use a full-fitting pin in the width direction. We don't have a full-fitting pin in the traveling direction of the film; we do that so we can achieve higher speeds. With two full-fitting pins, the pitch control would just become too sensitive.

"We also needed the movement with the lens position of our 15/70 camera to be equivalent to our 8/70 cameras. We need to use them both identically in a 3-D mode on our 3-D rig. They have to work optically in an identical fashion."

Some recent releases shot with the Iwerks' 8/70 camera include the 3-D films *Cirque du Soleil Journey of Man* (see AC Sept. '00), *Siegfried & Roy: The Magic Box*, *Ultimate Gs: Zac's Flying* and the 2-D LF film *Michael Jordan to the Max*.

Developed for Iwerks in 1998 by Steve Hines of Hineslab in Glendale, California, the Iwerks 3-D rig will hold two 15/70 or 8/70 cameras. The Iwerks 3-D rig is the only system that gives an operator complete stereo control with adjustable interaxial (distance between lenses) and convergence (toe-in or angle change between lenses). The two cameras can optically be in the same space with an interaxial of zero or go (on the fly with cameras running) up to 5 inches of interaxial spacing.

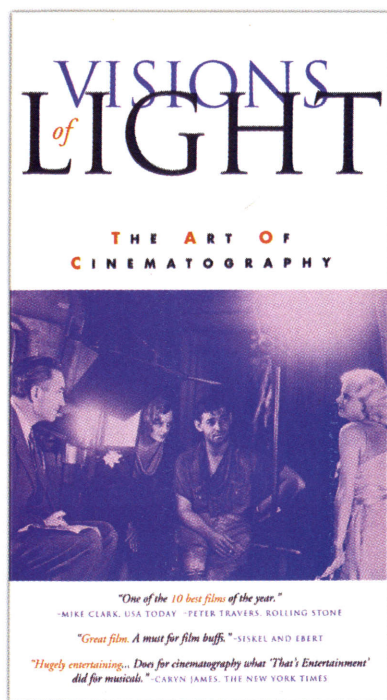
Iwerks has a rental fleet of seven 8/70 cameras that shoot at speeds up to 60 fps. Five of those were built for Iwerks by Marty Mueller of MSM Design, and the other two were made by Fries

Iwerks' new 15/70 large-format camera has a top frame rate of 48 fps. A version that runs up to 60 fps is under construction.

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(VHS, U.S. format)

Engineering. Three MSM Design 8/70 cameras were completed in the early 1990s and weigh 38 pounds each. Iwerks acquired two additional MSM-built 8/70 cameras in the late 1990s, one of which features a 22-pound body and 180-degree shutter. The new 15/70 camera weighs 50 pounds with a 500' magazine and 70 pounds with a 1,000' magazine. It uses a 156-degree fixed shutter.

Top frame rate on Iwerks's new 15/70 camera is 48 fps, but two additional 15/70 cameras under construction (to be completed by the spring and summer of this year) will run at 60 fps. With the pulldown pins changing position for the film to run at higher speeds, the film is protected. Camera weight, however, remains a challenge. "At 60 fps," explains Shepley, "we have to have fairly large motors in the camera and magazine to accommodate that kind of speed. At the higher fps rates, light weight induces some vibration issues, and I don't want to deal with that."

The 15/70 camera shares common electronic plug-ins like remote controls and sync boxes with the 8/70 cameras. State-of-the-art electronics for the new camera were designed by Bob Auguste of the Galloway Group. For time-lapse photography, Auguste has produced an electronic box that will integrate a Norris intervalometer with the existing motor drive. The time-lapse feature will be ready for use with the two additional 15/70 cameras under construction.

Lenses for the new 15/70 are compatible with the 8/70 camera and range from 30mm to 800mm with completely re-barreled Hasselblad/Zeiss lenses. Most of the 15/70 camera is constructed of magnesium and aluminum to keep its weight down. "The front plate of the camera is steel," notes Shepley. "The lens mounts go there, and when you put an 800mm or 350mm lens on it, there can really be some stress on the front of the camera. But overall, there is not a lot of steel in the camera."

The video tap consists of a built-in color camera that can be connected to a monitor on-site or by remote control. The 15/70 camera will fit on many existing heads, including those used for many

35mm cameras.

Reload time and ease of threading were important considerations in the design of the new camera. "The reload time is pretty much the same as our 8/70s," says Shepley. "The displacement magazines on our 8/70 are probably a little bit easier and quicker to thread up when we use a coaxial mag, due to the fact that it is a double-chamber magazine. It may take 10 seconds longer to thread up the 15-perf, but the two cameras are pretty equivalent."

Photographic innovation is a signature of the Iwerks company. In the early 1950s founder Don Iwerks designed a 360-degree 35mm Circle-Vision rig for the Walt Disney Company. The descendant of this rig is the Iwerks 360, a 700-pound system that holds nine 35mm cameras. Shepley designed an 8/70 3-D camera system used for the flying sequences in *Ultimate Gs: Zac's Flying Dream*. For this system, two 8/70 cameras were paired using coaxial film magazines and matching 180-degree shutters.

Construction of the two additional 15/70 cameras is proceeding as rapidly as possible. "Our clients always like to have backup cameras," Shepley points out. "We took this project on three years ago. We're looking forward to seeing the films shot with our new camera."

For more information on the 15/70 camera, contact Iwerks at (818) 841-7766.

Lighting Spirit

After a long development in cooperation with users, Movie Tech of Germany presents the Spirit lighting system, which will allow for easier and better lighting for film, TV and photo studios.

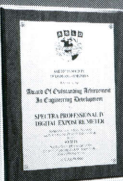
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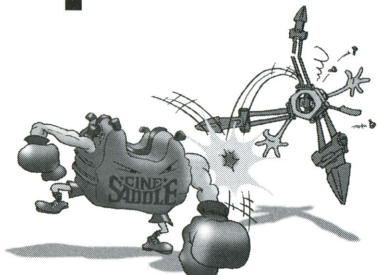
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The "Wet" Look

New York City-based Cineric, Inc. has introduced a high-tech service for restoring, preserving and making optical blow-ups of 8mm and Super 8mm films. The company has developed an optical printer that employs the most advanced,

Cineric is also offering an optical blow-up service for copying 8mm and Super 8 films onto 16mm or 35mm duplicate negative films as a master for generating prints for projection in festivals and other purposes. Optical blow-ups also provide a more robust archival copy of historically or financially valuable 8mm and Super 8 films.

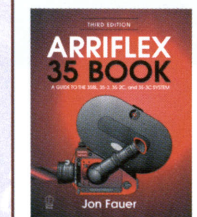
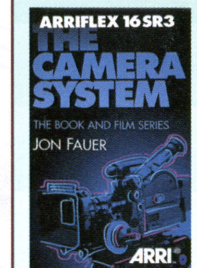
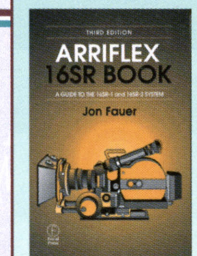
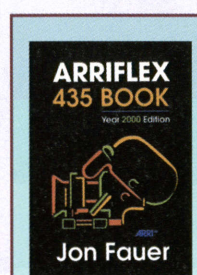
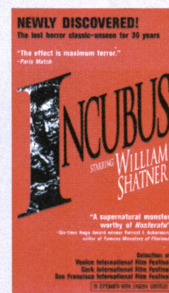
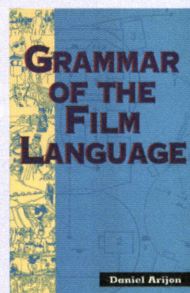
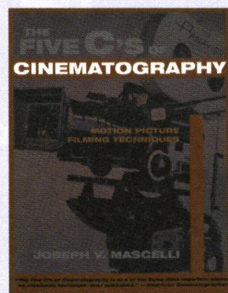
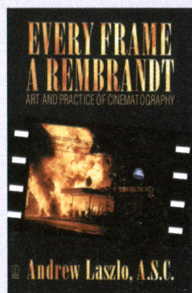
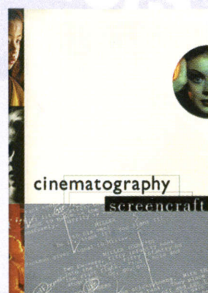
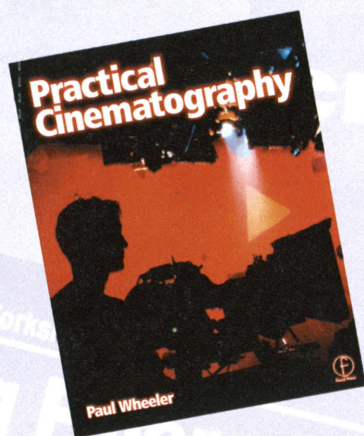
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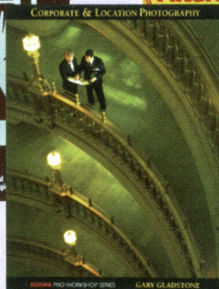
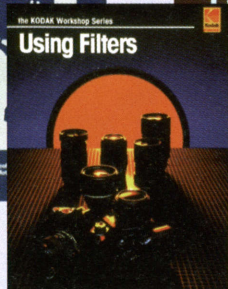
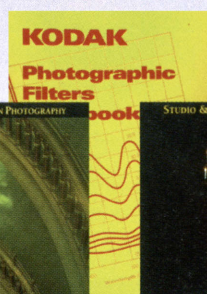
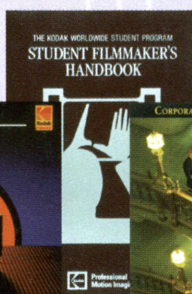
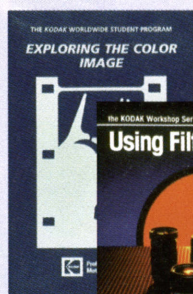


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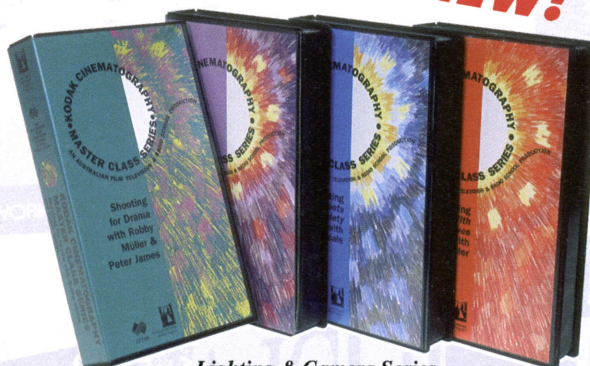
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More Processing, Please

The Continental Film Labs branch in Miami, Florida, has expanded its processing schedule. "Our Miami facility is running our negative machine every Friday night, and our customer-service staff is available each Saturday morning to ship negative or video dailies as required by our clients," says Continental's president Mike Bitetti. "This expansion of our schedule can potentially save our clients thousands of dollars in opening fees and give them the option to keep postproduction in town when a commercial shoot spans into the weekend."

Although negative processing and scheduled video dailies can be arranged on the Friday night schedule, there are no plans to include print-daily services within this expansion. "Customer-service representatives will be available on a limited schedule on Saturday mornings to release work submitted Friday night," explains Bitetti.

Continental Film Labs, (800) 327-8396 or (305) 949-4252, Web site: www.ffilmlab.com.

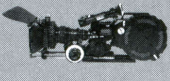
"X" Marks the Spot

Visual-effects supervisor Dennis Berardi and Chris Wallace and Sylvain Taillon of Toronto-based TOPIX/Mad Dog have opened the doors at Mr. X, Inc., a studio providing computer-generated visual effects for feature-based entertainment.

Mr. X is an equal partnership between TOPIX and Berardi. TOPIX specializes in character animation, special effects, film titling, and type and broadcast design, and is supplying the financing and technology. Berardi, formerly visual-effects supervisor of Toybox (Toronto, Vancouver and Los Angeles), will supply the ideas and direct the talent.

"More and more, directors are relying on digital content providers to help tell their stories," explains Berardi, president of Mr. X. "We can break down the important visual moments of the script, offer design, pre-visualization, on-set vfx supervision, high-end photo-real CGI and compositing. Our goal is to be the first









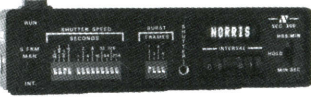
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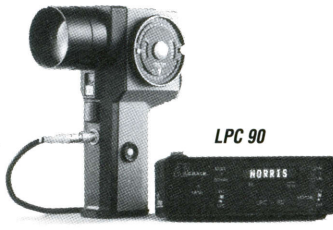
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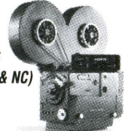
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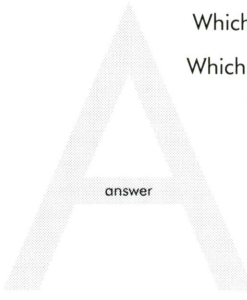
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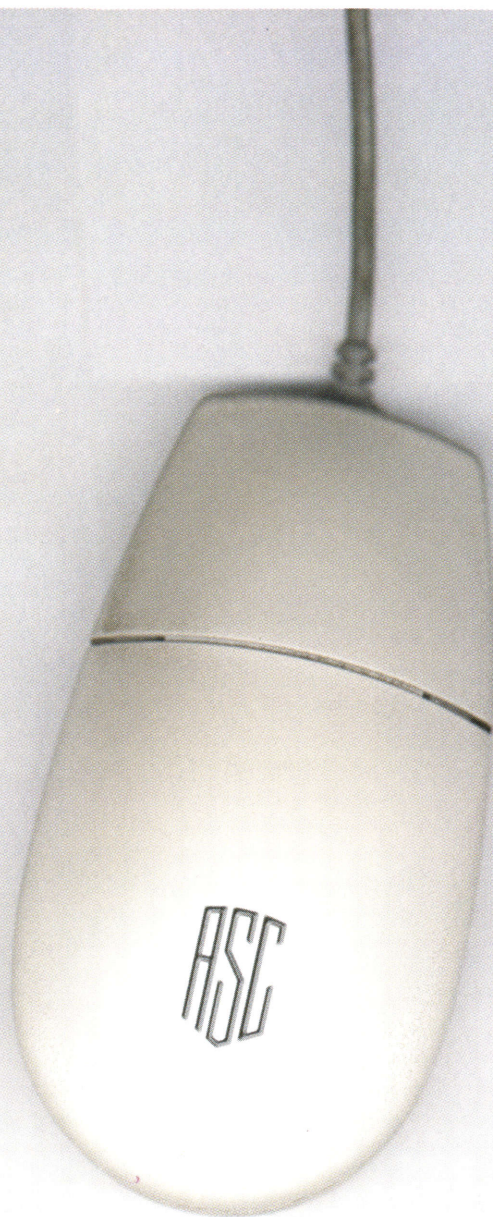
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people on and the last people off a feature project, interacting with all the traditional department heads along the way."

In the last three years, Berardi was visual-effects supervisor/producer or manager on films such as *The Cell*, *Fight Club*, *eXistenZ*, *Keeping the Faith*, *Superstar*, *Thomas and the Magic Railroad*, *Jason X* and *Bride of Chucky*. Earlier in his career, Berardi worked on projects that included *The Sweet Hereafter*, *Cube*, *The Planet of Junior Brown*, *Mimic*, *Fly Away Home* and *The Hunchback*.

Mr. X is equipped with a mix of technical and creative individuals who possess expert knowledge of the latest imaging technology and are intent on pushing the limits and making the impossible possible within the digital realm, according to Berardi. "I want this company to be ideas-based, not necessarily technologies-based, and that has everything to do with the people and the creative process," he notes.

To stay in tune with the up-and-coming talent pool, Mr. X is in the process of partnering with schools, including Sheridan College, Centennial Development Center, Vancouver Film School and CalArts.

Software programmer and technical wizard Colin Withers has joined Mr. X as the studio tools developer. He was previously technical director at TOPIX, overseeing the day-to-day technical aspects of the studio, with responsibility for researching and developing custom studio software tools to aid in production of broadcast design, 3-D animation and postproduction.

Rounding out the Mr. X team are Flame artist Aaron Weintraub, VFX compositor Marco Posinelli, digital matte artist/animator Kristy Blackwell, character animator Brian Anderson, and animators Sean Cohen, Shane Glading and Mark Stepanek.

For additional information, contact Mr. X, Inc., 35 McCaul Street, Suite 303, Toronto, Ontario, Canada, M5T 1V7, (416) 595-6222, fax (416) 595-9122, or visit the Mr. X Web site at www.mrxfx.com. ■

Points East

The Sopranos Plants Roots (and Bodies) in the Garden State

by Eric Rudolph

Long overshadowed by its proximity to Manhattan, New Jersey has also been the butt of endless jokes about its supposedly omnipresent, choking industrial landscape and its residents' lack of sophistication. But when Jersey native David Chase debuted his pet project, *The Sopranos*, on HBO two years ago, the state suddenly took on some cachet — some might say infamy.

Some might think that the huge success of *The Sopranos* led to the discovery of filmmaking in New Jersey, which offers wide beaches, tony horse country and gritty urban landscapes, in addition to easy access to New York's production and postproduction facilities. However, a number of top-flight feature films, including *Stardust Memories*, *Goodfellas*, *Big Night*, *The Ice Storm*, and *The Hurricane*, have been shot in Jersey, and the state has had an active film commission for 25 years. It seems safe to say, however, that no production has exploited the state's, well, "Jerseyness," so completely and knowingly as *The Sopranos*, now in its third season.

According to Mark Kamine, the show's location manager, Chase insists on shooting in New Jersey whenever it's practical. "[He feels] it looks like New Jersey in a way that nowhere else does," Kamine explains. "There's a certain terrain and vintage of houses that is pretty specific [to the show's world]. It's a scenically ugly kind of image [that] photographs in an interesting and evocative way for the sake of our stories."

Key sets such as the Soprano home interior and Dr. Melfi's psychiatry



office reside year-round at Silvercup Studios in Queens, New York, but most of the show's exteriors and many interiors are filmed in and around the Jersey towns where the drama is set. For instance, Silvio Dante's topless bar Bada Bing! is a real topless joint hard by a busy highway in Lodi, and the pork store where Tony Soprano has his office is a local shop that the production converted into a rather extensive location studio. The so-called bucket shop where Christopher Moltisanti ran his stock scams during the second season was an old union headquarters in Newark. The choice of this practical interior led to

more filming in the immediate area. "The bucket shop was surrounded by the iron bridges that characterize Newark, so we shot in the area around it a lot for the atmospherics," Kamine notes.

The show's 13-episode seasons require about 120 shooting days, and Kamine estimates that 50 to 70 of those days are spent in New Jersey. This season, Kamine's staff, which includes four location scouts and two assistant location managers, is bringing alternating directors of photography Phil Abraham and Alik Sakharov on the scouts along with the directors, so they can plan shots more effectively. (See

Tony Soprano (James Gandolfini) argues with his sister Janice (Aida Turturro) in the hit drama *The Sopranos*, parts of which are filmed on location in New Jersey.

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Points East, AC Oct. '98, and AC Jan. '00.) Previous seasons were shot by a single cinematographer who did not have time to see the locations until the day of the shoot.

The best thing about working in New Jersey is the "huge variety of undeveloped land and the urban, suburban, industrial and beach areas," Kamine says. The worst aspects are directing people to and trying to reach many of those locations. "In Manhattan, you just put an arrow on a map, but in New Jersey, it takes manpower and time to get those details into place," he says.

One particularly colorful location used in last season's final episode was the crumbling seaside resort of Asbury Park. The town and its bygone heyday loom large in the memory of many Jerseyans, and it also appears to hold a strong fascination for filmmakers. New Jersey-based filmmaker Kevin Smith shot the opening of *Dogma*, which was otherwise filmed outside of the state, amid the ruins of the Asbury Park boardwalk, and several short films have been made there. (The feature *City by the Sea* is currently shooting there.) Working in the desolate and decrepit boardwalk area was an experience Kamine won't soon forget. In fact, he reveals, *The Sopranos* might return to the boardwalk this season. "It's a pretty amazing place, like a post-apocalyptic town — quite unbelievable," he observes. "It has a very spooky feeling, especially in the winter."

This season, *The Sopranos* has also spent more time filming at the actual subdivision mansion that represents the Soprano family home. Interiors for the pilot were filmed in the actual house, but to save money the interiors were then painstakingly recreated on the stages at Silvercup. The show's hit status led to bigger budgets, which allows a caravan of trucks to fill up the suburban cul-de-sac and surrounding streets so that action can unfold amid the lush, manicured grounds (which include the pool where a visiting family of ducks helped trigger Tony's psychological collapse in the pilot).

Filmmaking in the suburbs might seem like a day at the beach compared

to working in the cramped streets of New York City, but Kamine notes that there are problems with these locations as well. "I think we overwhelmed the [residents] a bit," he surmises. "Some places have only one or two roads in and out, and if we're even partially blocking them, it can affect traffic in the area [quite dramatically]." To placate inconvenienced residents, the production avoided that area for some time after its initial visits.

Some Jerseyans are not happy to see the production at all, however. A number have complained that *The Sopranos* is defamatory to Italian Americans, who make up a significant portion of the state's population; as a result of these objections, the show has been denied the use of several locations. "A very few locations had politicians and staffers who agreed that the show was defamatory," Kamine explains. However, he adds, those concerns do not always seem genuine: "In one case, a person who publicly stated that he didn't want *The Sopranos* around . . . had earlier gone to one of the location owners seeking a cameo role. Four months later, he's saying the show is defaming." That the show is not good for the reputation of Italian Americans is "an opinion," he emphasizes. "How can this be adopted as a fact by a government? But it has been."

In fact, Essex County, which includes Newark and areas near the Soprano home, has banned the show from county property, which means that public parks are off limits and the production's use of county roads is restricted. The ban does not prevent the use of the house exteriors, however. As for the family that lives in the house, they all stay put during production. "We're outdoors almost exclusively and only for a day at a time," Kamine remarks. "They put up with us." ■

Eric Rudolph can be reached via e-mail at erudolph2@nyc.rr.com.

Books in Review

by Ray Zone

Conversations With Screenwriters

by Susan Bullington Katz
Heinemann

202 pp., paperback, \$17.95
ISBN 0-325-00295-9

Collected from the pages of *Written By* magazine, these interviews with screenwriters by Susan Bullington Katz provide insight into the wildly different processes by which writers produce their stories for the motion-picture screen. In all, 22 award-winning screenwriters are engaged in informal but revealing conversations with Katz, who has a deceptively simple but fruitful way of handling an interview.

In his foreword to this collection, screenwriter Alan Burns notes, "Someone once said that a critic is a person who comes onto the battlefield after the war and shoots all the wounded. The person who said that was a writer." Katz knows all about a writer's wounds, and she's gotten her subjects to discuss their own with great candor. Compiling these interviews over the course of five years, Katz notes that "not one of them said about the actual act of writing that it's easy."

Ruth Prawer Jhabvala, who has adapted literary works such as *A Room With a View* and *Howard's End* for film, relates that while writing, "I really don't think much about it, how it's going to be in a film. I just think, 'How are these two characters going to interact with each other?' I know it can't be the same as on the page in a novel — it must be much more direct and the language has to be simpler."

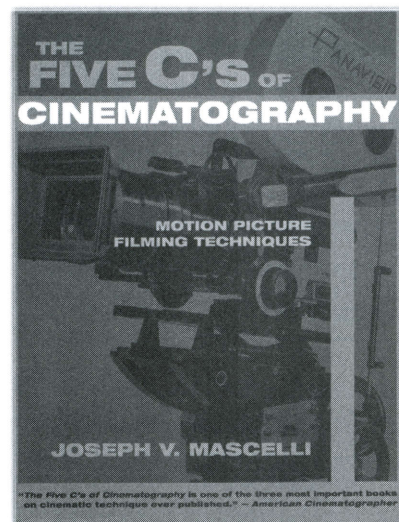
Writer/director Frank Darabont, who has adapted Stephen King's *The Shawshank Redemption* and *The Green Mile* for the big screen (along with Mary

Shelley's *Frankenstein*), describes the payoff a filmmaker gets when an audience responds to his work: "There's nothing like pushing all those buttons as you go through the story and have the audience react the way you decided a year and a half ago they were supposed to react," he says. "There's nothing better than surprising them and hearing them gasp, or amusing them and hearing them laugh, or touching them and hearing them snifle. That is the best."

Katz asks writer/director Mike Leigh how he makes the audience care about his characters. "I can only make you care," responds Leigh, "by caring about them myself." For Leigh, the writing of the shooting script comes out of working with the actors to explore the world of their characters in rehearsal. For his Academy Award-winning film *Secrets & Lies*, Leigh rehearsed for five months before finalizing his script and shooting.

Anthony Minghella describes how he left the novel *The English Patient* by Michael Ondaatje behind in adapting it to screenplay form. "I think the job of the screenwriter is much more architectural than it is a work of poetry," he says. Minghella believes that a script is a map that a filmmaker can use to create cinematic poetry; he beautifully compares a writer's inspiration to looking into a drawer which is only open for about two or three seconds every day. "There's a lot of time spent roaming, waiting for the drawer to slide open," he says, "then you see some lines and write them down quickly as you can, and the drawer slams." Minghella notes that sometimes the drawer stays open for hours, or "days will go by where the drawer never opens."

Katz's interview with Horton Foote, the Academy Award-winning



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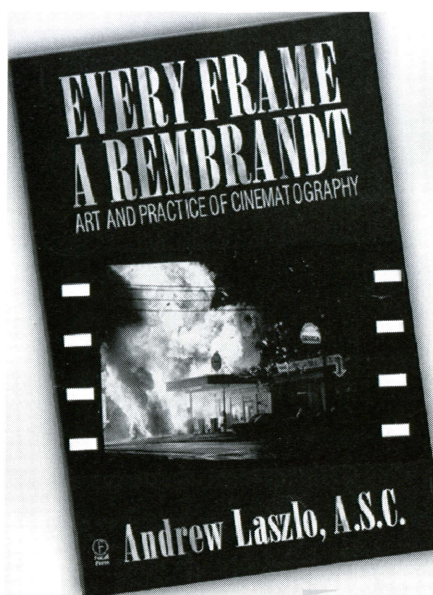
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screenwriter of *To Kill a Mockingbird* and *Tender Mercies*, is an object lesson in the power of persistence. "Don't ever give up on something," says Foote. "You just can't, because you just never know." Foote's 1953 television play *The Trip to Bountiful* took 32 years to make it to the big screen.

Writer/director Atom Egoyan, whose films include *Exotica*, *The Sweet Hereafter* and *Felicia's Journey*, has always been intrigued by the things people *can't* say. Not surprisingly, his heroes are playwrights Samuel Beckett and Harold Pinter. "I've always loved the silence and pause, where there would be extended moments where the viewer or the reader would have to imagine what was unsaid," he offers.

This fine collection of interviews is highly recommended for anyone interested in how the filmmaking process begins.

The Films of Martin Ritt: Fanfare for the Common Man

by Gabriel Miller

Foreword by Sally Field

University Press of Mississippi

240 pp., paperbound, \$18

ISBN 1-57806-277-2

The late Martin Ritt is generally regarded as one of America's strongest directors of socially conscious films that explore the human condition. Sally Field, who worked with Ritt several times (most notably on the 1979 picture *Norma Rae*, for which she won an Oscar) encapsulates Ritt's philosophy in her foreword to this book: "He felt it was important to stand for something — to have a moral point of view, especially if you work in the arts."

Often labeled a political filmmaker, Ritt's career spanned three decades in Hollywood and includes 26 films that celebrate the diversity of America and the democratic spirit. He thought of himself as a liberal, and he had great compassion for the disenfranchised and minorities. Working with the Federal Theater Project, the Theater of Action and the Group Theatre (with

fellow artists such as Elia Kazan, Harold Clurman, Clifford Odets and Sanford Meisner), Ritt learned about the importance of the ensemble and directing.

Before directing his first film in 1957, Ritt was a successful television actor, producer and director in the early 1950s, and he compiled credits on more than 100 shows. Ritt's career in TV was cut short in 1952 when he found himself blacklisted.

The experience proved formative for Ritt, who later addressed it directly with his film *The Front* (1976). In films such as *Edge of the City* (1957), *Five Branded Women* (1960), *The Spy Who Came in From the Cold* (1965), *The Brotherhood* (1968) and *The Molly Maguires* (1970), Ritt also expressed his distaste for informants.

To support himself while blacklisted, Ritt directed plays and taught at the Actor's Studio. He was also a talented handicapper at the racetrack and liked to go to the races with actor Walter Matthau; they became known as "The Odds Couple." (The two later made a racing film together, *Casey's Shadow*.)

It was David Susskind who defied the blacklist by offering Ritt the job of directing the film version of the teleplay *A Man is Ten Feet Tall*, which became *Edge of the City* (1957). Ritt developed an ongoing relationship with screenwriting partners Irving Ravetch and Harriet Frank, Jr., who collaborated with him on eight films, including *The Long Hot Summer* (1958), *Hud* (1963) and *Norma Rae*.

In Dennis Schaefer and Larry Salvato's book *Masters of Light*, John Alonzo, ASC, Ritt's cinematographer on *Sounder* (1972), *Pete 'n' Tillie* (1973), *Conrack* (1974), *Cross Creek* (1983) and *Norma Rae*, referred to Ritt as "my mentor, my hero," and said, "If I can get on a Marty Ritt picture every time, I'll be happy." The cinematographer also said that "under his auspices and guidance, I will have total freedom to just go as far as I want to photographically." ■

BILLY BITZER, ACE CAMERAMAN

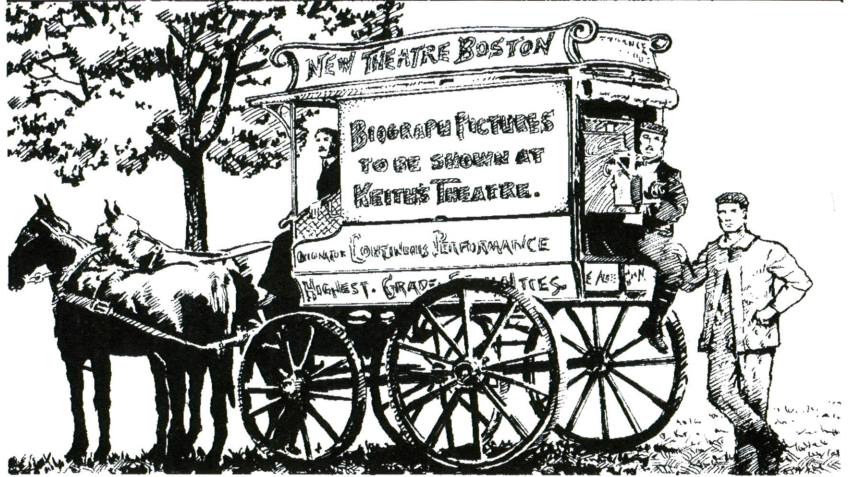
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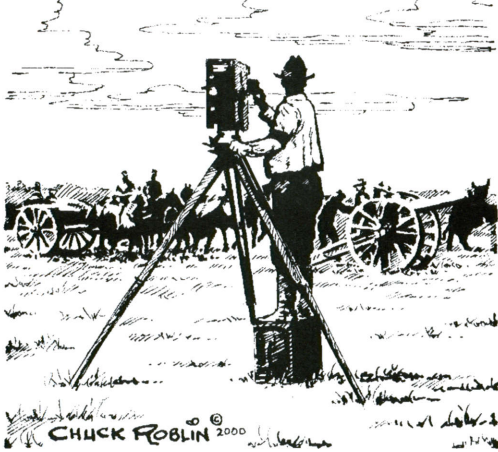
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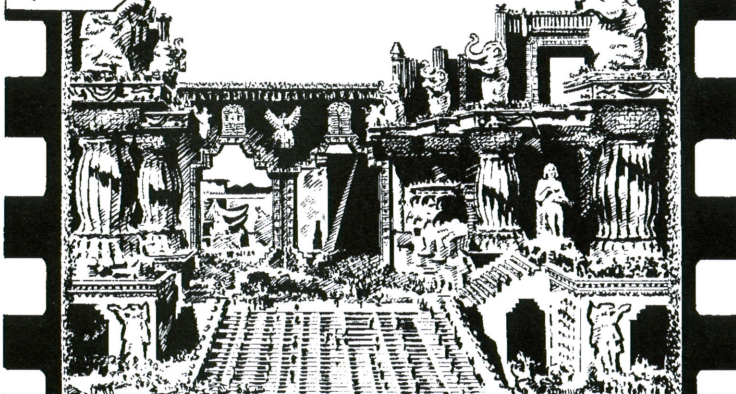
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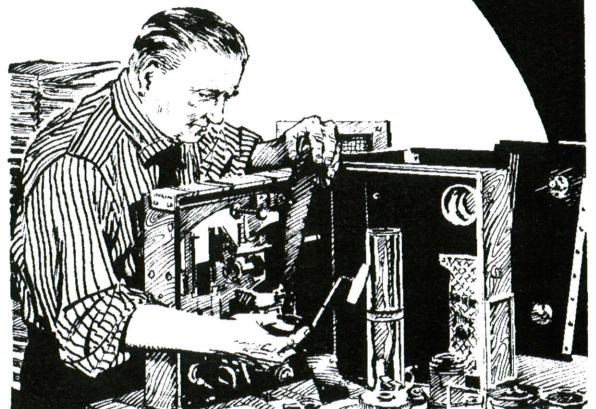
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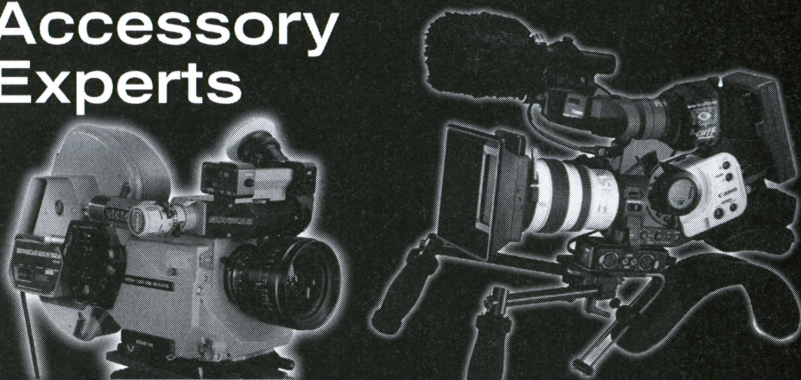
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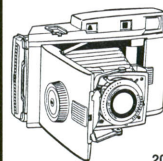
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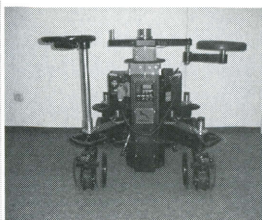


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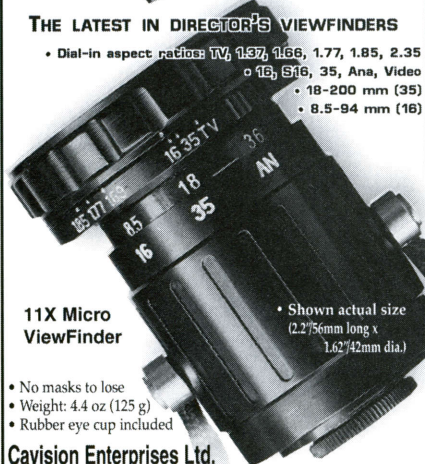
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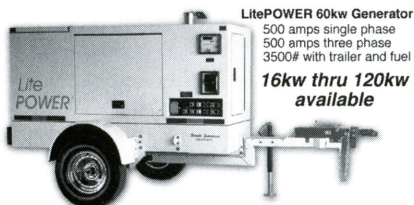
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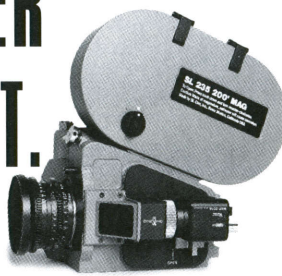
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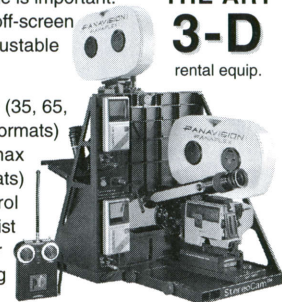
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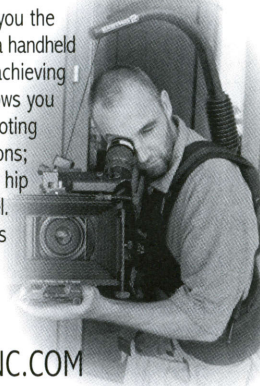


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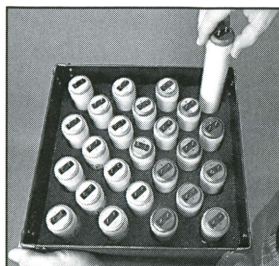


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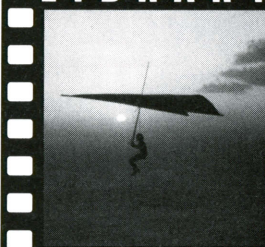
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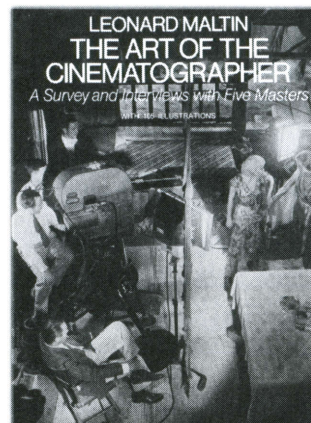
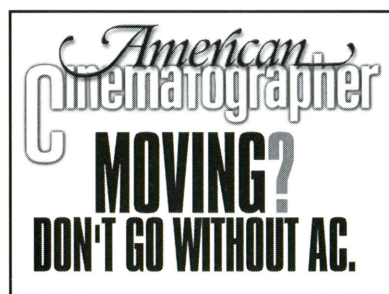
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From the Clubhouse

New ASC Inductees

The ASC has inducted Douglas Milsome, BSC, Frank Prinzi and Robert Yeoman into its active membership.

Douglas Milsome, BSC has been involved with a number of memorable films under the tutelage of John Alcott, BSC; he worked as a focus puller and camera assistant on Stanley Kubrick's *A Clockwork Orange*, *Barry*

also has shot numerous telefilms and miniseries, including *Lonesome Dove*, *Diana: Her True Story*, *Seasons of the Heart*, *Old Curiosity Shop*, *Elizabeth Taylor* and *Glory & Honor*.

Long Islander **Frank Prinzi** began his film studies under Paul M. Jensen at the State University College at Oneonta, where he also received a bachelor's degree in psychology. He continued

of New York. He also filmed the Academy Award-winning short *The Appointment of Dennis Jennings* in 1988.

Robert Yeoman was born in Pennsylvania and grew up in the Chicago area. After graduating from Duke University, he headed west to study cinematography at the University of Southern California, where he received a master's degree in film production. Films such as



Lyndon and *The Shining*. On *The Shining*, when Alcott left to take on another project, Milsome was able to shoot some first-unit footage. From there, he became a full-fledged director of photography.

"I use the Alcott system all the time now," Milsome remarked in the September 1987 issue of *American Cinematographer*. "He taught me how to use black-and-white Polaroids to measure a great deal more than just exposure."

Kubrick selected Milsome as his cinematographer for the surrealistically brutal 1987 Vietnam War film *Full Metal Jacket*. The film's gut-wrenching ending featured the now well-known and emulated technique of throwing the camera shutter out of phase, resulting in a strobe-like quality and streaky highlights.

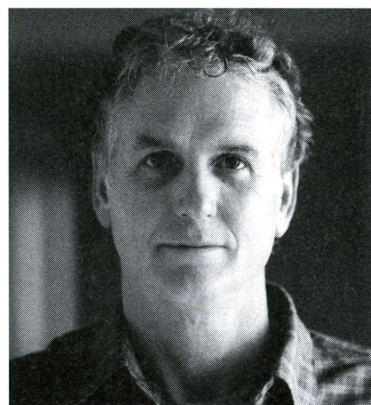
Milsome's sterling career includes the features *Desperate Hours*, *If Looks Could Kill*, *Robin Hood: Prince of Thieves*, *Sunset Grill*, *Sunchaser*, *Breakdown*, *Dungeons & Dragons* and *Revelation*. He



his studies in the Graduate Department of Film and Television at New York University, focusing on cinematography and receiving several awards for his work. After graduation, he steadily worked his way up the crew system.

Prinzi's body of work includes documentaries, commercials, television and feature films. In 1992, he earned an Emmy Award and an ASC Award nomination for his cinematography on the TV series *Northern Exposure*. He received another Emmy nomination for his work on the show in 1993. His other TV credits include *Gideon Oliver*, *Mystery Dance*, *Gemini Man*, *The Grave*, *The David Cassidy Story*, *Witness to the Mob* and *Deadline*.

His feature-film work includes the 1990 remake of *Night of the Living Dead*, the independent filmmaking parody *Living in Oblivion*, *She's the One*, *The Real Blonde*, *200 Cigarettes*, *The Best Man*, *Chinese Coffee* and *The Sidewalks*



Bernardo Bertolucci's *The Conformist* and John Ford's *The Grapes of Wrath* inspired him to pursue a career in cinematography.

After shooting numerous commercials, Yeoman broke into feature films when he was hired to shoot second-unit work on William Friedkin's *To Live and Die in L.A.* He worked with Friedkin twice more, on *Cat Squad* and *Rampage*, as first-unit director of photography. Yeoman notes that he was "forced to come up with simple lighting solutions in lighting design" because the quick-working Friedkin did not tolerate long lighting setups.

His body of work consists of many highly praised features, including *Drugstore Cowboy* (1990 Independent Spirit Award for Best Cinematography), *Johnny Be Good*, *The Wizard*, *The Linguini Incident*, *Bottle Rocket*, *Permanent Midnight*, *Rushmore*, *Dogma*, *Beautiful*, *Double Whammy* and *CQ*. ■



WRAP SHOT



Drug lord Tony Montana (Al Pacino) contemplates a miniature mountain of cocaine in Brian De Palma's 1983 remake of *Scarface*.

In the behind-the-scenes material on the DVD of *Scarface* (1983), screenwriter Oliver Stone, director Brian De Palma, and director of photography John Alonzo, ASC discuss the making of the film. "Tony gets the American dream, but it's hollow," says Stone, who scripted this remake of the 1932 gangster classic directed by Howard Hawks. The original *Scarface* featured Paul Muni as immigrant hood Tony Camonte, who rises to the top in a world of bootleg booze and flying bullets. "Oliver gave us the cocaine/Cuba/drug-dealer tour of South Florida," recalls De Palma, whose film substitutes disco and 1980s excess for the original's Prohibition era. "I liked the material because to me, it was a modern metaphor for *The Treasure of Sierra Madre*, where cocaine becomes gold and it's the American dream gone crazy."

Based on the novel of the same name by Armitage Trail, the 1932 *Scarface* (scripted by Ben Hecht) ran into problems with the censors for its excessive violence. De Palma's version

encountered similar criticism, and the director was forced to go to arbitration to secure an R rating from the MPAA.

Filming of the 1983 *Scarface* began in Miami but had to be completed in Los Angeles because of objections from the local Cuban-American community. Alonzo notes that "De Palma has an affinity for doing the high crane shot and the straight-down angle that we used in

"Me, I want what's coming to me."

"What's coming to you?"

"The world, Chico, and everything in it!"

— Cocaine kingpin Tony Montana (Al Pacino) to his right-hand man Manolo (Steven Bauer) in Brian De Palma's *Scarface*.

the opening shot of the Cuban immigrant camp underneath the freeways. If we had been leveled off, you would have seen that it was Los Angeles and not Miami."

Alonzo shot all of *Scarface* using Kodak EXR 5293, rating it as high as 2000 ASA. Very fluid camera movement is used throughout. "Brian likes to move the camera a lot, but he doesn't do it arbitrarily with what I call cinematic gymnastics," Alonzo explains. "He does camera moves that are an integral part of the story."

De Palma specifically wanted to avoid the look of film noir. "I wanted to go with high-tech, neon, acrylic and pastels, instead of the usual film noir," he says. "If you looked at South Florida, this was what it was all about. These guys dressed in white, not black." Adds Alonzo, "Brian told me in the beginning, 'Light it as beautiful as you can. The film noir will come out of the performances.'"

Filming *Scarface* presented some unique challenges. "The Babylon Club

was an extraordinary set," Alonzo recalls. "[Set decorator] Bruce Weintraub and [art director] Ed Richardson asked me, 'Do you mind mirrors?' And I said 'No, I don't mind mirrors.'" When he walked onto the dressed set, however, Alonzo found himself surrounded by 15 panels of mirrors set at different angles.

"To add to the problem," he continues, "Brian told me he would like to cut between two and three different cameras. I had to check each camera to make sure they weren't reflected in the mirrors and, when the club is destroyed with gunshots, that we weren't going to get any accidental reflections of the cameras or anything else."

Lead actor Al Pacino (playing Tony Montana) asked Alonzo for a special favor on the production: "Johnny, only speak Spanish to me once we start the movie." Alonzo offers, "That was part of his preparation."

At the film's climax, Montana has gained the world but lost his soul. Sitting at a desk piled high with a mountain of cocaine, Montana is unaware that hordes of assassins have begun to infiltrate his mansion to dispatch him. Soon, one of the most operatic and extreme displays of gunplay in all of cinema commences. "Say hello to my leetle friend," Montana snarls to his assassins, wielding a large, high-powered machine gun and firing away from a balcony atop a staircase. Alonzo recalls, "The problem we were having all through the picture when the actors were using the weapons was that we'd have an active fire and the camera wouldn't catch the flash. We'd have to do the take again, and you could see the wear and tear on the actors when that happened. Ken Pepiot and Stan Parks, our mechanical-effects men, were clever enough to come up with a synchronizer. The gun would not fire until the shutter was open on the camera to see that flash."

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